The Builder.

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Some Recent Architectural Discoveries in Egypt.

LAST winter the Egypt Exploration Fund brought to a close the interesting excavations at Dêr el-Bahari, opposite Luxor, which have revealed a type of building hitherto unknown in Egypt. Next to the great temple of Queen Hatshepsut that rises in terraces to the magnificent circus of cliffs that faces the Nile Valley, the excavators, Prof. E. Naville and Mr. H. R. Hall, have uncovered the funerary temple of King Mentuhotep III., who reigned about 2500 B.C., or nearly a thousand years before Hatshepsut. The building is remarkable, amongst other things, as being an interesting example of the transition between the Egyptian funerary structures of the early and later period. The Kings of the IVth Dynasty reared as their tombs the magnificent pyramids of Gizeh, which still look down on Cairo in silent majesty, while the temples in which the cult of the dead monarchs was celebrated were closely connected with the pyramids, and entirely dominated by their towering and massive proportions. The Pharaohs of the XVIIIth and later dynasties erected great temples, such as the Ramesseum and Medinet Habu at Thebes, and the temple of Seti I. at Abydos, in which their cult might be celebrated after their decease; they were buried, however, in tombs cut in the mountains some distance from their temples.

This building of Mentuhotep is half pyramid half temple, and represents the transition period, during which the pyramid had grown much smaller and was surrounded by colonnades and ambulatories, but had not yet entirely disappeared in favour of the temple building pure and simple. It is situated on a rock platform (160 ft. by 190 ft.) jutting out into the plain from the cliffs behind. This platform has been artificially squared and faced by a retaining wall of limestone, the masonry of which is so excellent that the bonding between the blocks is scarcely visible, and the wall presents a solid, smooth surface. In the centre of the platform stood the pyramid, the base of which only remains (75 ft. by 75 ft.). It was surrounded by a hypostyle hall of three rows of octagonal columns, some of which still stand in their entirety. Outside this was a colonnade or ambulatory of two rows of square columns, separated from the inner hall by a wall, which, when entire, was covered with delicately-coloured reliefs representing court processions, hunting and war scenes, etc. Below the pavement are numerous tombs, chiefly of princesses from the royal *harîm*. Abutting on the rock platform on the south-east side facing the plain and on a lower level is another colonnade, also of two rows of square columns.

In every case the inter-columniation is very small. The platform was approached from the south-east by a sloping ramp, and the hypostyle hall was gained by a wicket, the door of which worked on a red granite threshold. Behind the pyramid and running from the ambulatory towards the cliffs is a colonnade which leads to a second smaller hypostyle hall (60 ft. by 65 ft.), supported by eighty octagonal pillars, and cut out of the cliff itself. The colonnade which leads to it (120 ft. by 65 ft.) consists of a double row of six octagonal columns. In the centre is a sloping *dromos* leading down to a tomb, which M. Naville considers to be the cenotaph of the King, the actual burial having taken place elsewhere. For about 350 ft. the passage to the tomb chamber is vaulted with a false arch. The chamber itself is built of granite, and has a gabled roof, similar to those in the centre of the earlier pyramids. In the centre of the face of the cliff at the end of the hypostyle hall above, is a small *speos* before which stands a *cella* (22 ft. by 10 ft.), with walls of white limestone, sculptured with well-coloured reliefs, and containing a monolithic limestone altar with a depression for libations.

The whole temple is perfectly symmetrical—the ramp, the centre of the pyramid, the *dromos* leading to the cenotaph, and the *cella* and *speos*, being all on the central axis of the building. The general effect of the building when complete was that of a small pyramid rising out of a double colonnade of clustering white pillars of the so-called protodoric order, with another colonnade leading back to a pillared hall cut into the rocks; the whole was raised above the level of the valley on a rock platform, squared and faced with beautiful

masonry, while access was gained by the sloping ramp over a lower colonnade. With the added effect of coloured reliefs on all the walls, the whole structure must have been very imposing in the brilliant Egyptian sunlight.

Excavations directed by the German architect Borchardt have been going on for some years under the auspices of the German Orient Society in the pyramid field of Abusir, south of Cairo. The chief work has been at the pyramid of King Ne-user-ra of the Vth Dynasty. In this case the pyramid still entirely dominates the temple which lay below it on the eastern side facing the Nile. The approach across the strip of desert (about 300 yds.) that separates the temple from the inundation high-water mark, was made through a long gallery built of stone, the interior being lined with reliefs. It is supposed that this gallery had a kind of clearstory roof, but what is left of it does not admit of much architectural reconstruction. At the end, where the desert joins the cultivation, was a kind of gatehouse with a hall supported on eight lotus-bud columns, with a little quay in front. During the inundation this formed a water-gate. The approach to the temple, therefore, was made by disembarking at the quay, and passing through the gate-house and along the gallery. The temple itself, an oblong building of about 140 ft. by 90 ft., consisted of two main courts, the outer one (63 ft. by 90 ft.) containing magazines and store-rooms; the inner one (about 65 ft. by 90 ft.) being a pillared hall or kind of *atrium*, with the centre open to the sky. The columns numbered sixteen in all, and were of the same lotus-bud order as those in the hall of the gate-house. Passing to the right from the end of the court and through several small rooms, the inner shrine was reached, a small chamber of about 30 ft. by 15 ft., dedicated to the cult of the King's *Ka*, or double. It abutted on the eastern wall of the pyramid, in the centre, and a false door was constructed, through which the ghost of the dead king might pass from his tomb in the pyramid into the temple. The tomb-chamber which is situated in the centre of the pyramid itself was constructed with the usual massive granite walls and gabled roof. Close by the temple are the smaller pyramids of the queen and the tombs of several of the principal courtiers.

The third discovery of note recalls an interesting episode in history. About a hundred and fifty-six years before Christ many of the Jews were driven from Jerusalem by the tyranny and anti-Jewish policy of Antiochus Epiphanes. They migrated to Egypt, where they were well received by Ptolemy Philometor, and there, at the inspiration of one of their chief men, Onias, they built a new Jerusalem, a new temple modelled on the plan of the great temple on Mount Zion. The site of this, still called to this day Tel el-Yahudiyeh, or the mound of the Jew, has recently been excavated by Prof. Petrie, and, although the remains are few and poor, a good deal of interesting matter has been discovered. An artificial mound was thrown up, which must have risen to a height of 59 cubits from the ground, and was formed so as to be a miniature of Mount Zion. This mound was faced by a brick retaining wall, much of which still remians *in situ*, and on the north side measures between the turns of the bastions 716 ft. On the top were the temple and castle buildings erected of stone, plundered from neighbouring temples.

Traces of the outer and inner courts can be made out still, but nothing is left of the porch, the Holy Place, or the Holy of Holies, except a mass of brickwork. What architectural fragments remain are of considerable interest, and point to a Jewish origin. A piece of cornice was found with a drip edge underneath to prevent rain dripping on the walls, a feature entirely unnecessary in a rainless country like Egypt, and evidently of Palestinian origin. The capitals of some of the pillars seem to indicate the Corinthian order, while some fragments show that the embattlements were semicircular like those at Medinet Habu, and were ornamented with a rectangular rib moulding. The approach to the mound was up a steep stairway flanked by mud walls, faced with plaster, recalling the stairway that led from the Kedron Valley to the Temple. Unfortunately denudation has done its work since the buildings were finally dismantled by Paulinus the Prefect of Egypt at the end of the first century of our era, and we are only able to gather dimly a few details of this interesting architectural experiment.

THE QUEBEC BRIDGE COLLAPSE.

THE accumulation of facts concerning the design and failure of the Quebec Bridge leaves no room for doubt that the real cause of the disaster is to be found in the inadequate strength of the compression members. There were eighty of these in the unfinished cantilever, each of such vital importance that the failure of any one would be fatal to the structure.

Taking first the maximum stresses allowed for in the design, we find that, including the effects of dead and live loads, the main compression members, with the estimated value of $\frac{l}{r} = 36$, were calculated for the unit stress of 24,000 lb. per square inch. The most reliable experimental data which are available show that for solidly-built struts of mild steel, with the tensile strength of from 55,000 lb. to 70,000 lb. per square inch, the ultimate resistance cannot be taken at more than about 40,000 lb. for the value $\frac{l}{r} = 1$, or than about 37,000 lb. for $\frac{l}{r} = 36$. As the two qualities of steel used in the Quebec Bridge possessed the tensile strength of 58,200 lb. and 62,700 lb. per square inch respectively, and as the former was probably that of the metal in the compression members, we cannot safely take their maximum column resistance at more than 36,000 lb. per square inch. This makes the factor of safety $\frac{36000}{24000} = 1{\cdot}5$ only, even assuming the members to be of adequate design and perfect construction. For struts of unprecedented size, and of a type concerning which no experimental data exist, so small a factor of safety is enough to take one's breath away, especially in a bridge of such monumental proportions as that designed to span the St. Lawrence River.

While the facts mentioned above throw important light upon the excessively risky nature of the design for the finished structure, they do not explain why the cantilever should have failed at a time when the stress on the compression members was either 12,000 lb. per square inch, as some say, or 16,000 lb. per square inch, as others estimate. The safe working stress for struts of the type now in question, and for the value $\frac{l}{r} = 36$, is between 12,500 lb. per square inch and 13,700 lb. per square inch, according to the formula employed. The value calculated by the published rules of Mr. Cooper (the Consulting Engineer to the Quebec Bridge Company) is 13,300 lb. per square inch, and if it be admitted that this also was the stress under which the members failed, we want to know why the failure took place. That, of course, is quite a limited issue so far as concerns the general adequacy of the Quebec Bridge design, but one of far-reaching importance to structural engineers.

The main compression members were built up of plates in parallel planes, connected by latticed bracing at top and bottom, and by occasional diaphragms, to guard against transverse buckling. The plates were riveted together in sets of four, with angle-bars at top and bottom, and there were four sets in the cross-section of the members whose approximate overall dimensions were 4 ft. 6 in. in the plane of the plates and 5 ft. 6 in. transversely to the same plane.

If such members could be built with perfectly flat plates of uniform quality throughout, and erected so as to make the direction of the stresses exactly coincident with the plane of the plates, the transverse bracing would have little to do, and the struts might safely be proportioned in accordance with practice that we know to be satisfactory up to certain limits of size, and is probably safe beyond those limits for columns of substantial construction. But it is impossible to avoid slight variations in the quality of the metal due to manufacturing processes and particularly to cold straightening; it is equally impossible to make sure that the physical axis of every section of a strut shall be coincident with its geometrical axis; and it is also impossible to obviate the distortion caused by the work of riveting several plates together and of riveting the bracing in position. When, as appears to have happened in the case of the Quebec Bridge, compression members are slightly distorted by careless handling, the lack of symmetry is further accentuated, and their actual resistance may be far below that which has been assumed by the designer.

Where all the practical defects mentioned are present to an important extent, the duty of the transverse bracing becomes very onerous, and as stresses tending to cause buckling increase far more rapidly than distortion of the member, it is evident that a comparatively small load may result in failure of the bracing, followed by total collapse.

Without going into any elaborate calculations we can demonstrate by a

very simple illustration the important reduction of resistance which would follow the failure of the slender lattice bracing in a column built on the lines of the struts for the Quebec Bridge.

Considering a channel stanchion composed of two 15-in. by 4-in. channel-bars spaced 9½ in. apart and connected by suitable lattice bracing, the radius of gyration about the axis passing between the channel-bars works out at, say, 5·78. Now, supposing the bracing has entirely failed, we have left two 15-in. by 4-in. channel-bars only capable of acting independently. The radius of gyration for each of these about the axis parallel to the web of the bars is found on calculation to be 1·09.

This means that if the latticed bracing of a strut so built were to give way entirely, the value $\frac{l}{r} = 36$ would be increased to $\frac{l}{r} = 199$ for each of the separated bars; and that, taking the original column resistance at 36,000 lb. per square inch, the resistance of the two bars works out to (6,700 + 6,700) = 13,400 lb. per square inch, or only three-eighths of the original value.

Applying the same line of argument to the Quebec Bridge, we have a very clear indication of reasons sufficient to account for the failure, at a stress somewhere between 12,000 lb. and 16,000 lb. per square inch, of struts which were designed for the working stress of 24,000 lb. per square inch, and which, if free from accidental defects, would have been capable of supporting, with an adequate factor of safety, the working stress of, say, 13,300 lb. per square inch.

In due time, an authoritative opinion will doubtless be forthcoming as to the causes of the unsuspected weakness in the compression members of the bridge. Meanwhile, it is satisfactory to find that American engineers are seriously questioning the wisdom of the policy hitherto prevailing of trying to reduce the cost of bridge building by using latticed bracing in places where solid plates and diaphragms would be employed by more cautious designers. Another hopeful sign is that they are beginning to doubt the advisability of cutting down the dimensions of compression members to the smallest possible margin, and of working to factors of safety which do not provide adequately for all the contingencies that are sure to arise in spite of the utmost care of engineers and contractors.

NOTES.

The Railway Conference Result.

THE Railway Conference, arranged by Mr. Lloyd George, the President of the Board of Trade, in the hope of settling the chief difference between the railway companies and their men, has had the happy result of securing peace and of arranging an agreement which appears to be satisfactory to both parties and which should work well. This somewhat elaborate agreement, shortly, provides that there shall be several Conciliation Boards in connexion with each railway company, consisting of an equal number of officials and men of the various companies, and that such questions as wages, hours, and conditions generally shall be dealt with by them. If they cannot come to an agreement it is arranged that the matters in dispute shall be referred to an independent arbitrator, to be appointed by the Conciliation Boards, the Speaker of the House of Commons, or the Master of the Rolls. As we have said, this agreement appears to be satisfactory to both parties, for it has been signed by the Chairmen of the railway companies and by Mr. Bell and the Executive of the Amalgamated Society of Railway Servants, and, we understand, it has been acquiesced in by Mr. Fox for the Society of Locomotive Engineers and Firemen, and Mr. T. Lowth for the Railway Workers' Union. While the arrangement is honourable to both parties, it would appear that the men have good reason to congratulate themselves on the result, for if they have not secured full recognition of their union, they have got Conciliation Boards, upon which they have the same representation as the railway company directors, and the further right of appeal to an independent arbitrator; but in any case a strike has been averted, which is very good for all parties—the companies, the men, and the country at large—and the directors are to be congratulated upon the spirit in which they received the intervention of the President of the Board of Trade, who, in turn, deserves the thanks of the country for not only bringing to an end a dangerous crisis, but for having done much to secure a lasting peace.

Conciliation and Arbitration Boards.

A REPORT on the Rules of Voluntary Conciliation and Arbitration Boards and Joint Committees has just been issued by the Board of Trade Labour Department. At a time when the tendency of legislation has been to foster disputes, it is pleasant to turn to another side of the question and to see what efforts are being made to adjust the relations of employer and employed. The number of these Boards and Committees known to the Department is 194. These Boards represent certain specified trades, and it is estimated that their operations affect some 1,250,000 workpeople. There are two Boards restricted to Co-operative Societies, and fifteen Boards not confined to any particular trade. The Report deals with the various methods adopted by these agencies, and it is satisfactory to note the influence they exert especially in the settlement of disputes without a cessation of work. In the ten years 1897-1906 7,248 cases have been settled, and in only ninety-two, or about 1 per cent., did a stoppage of work precede the consideration of the dispute by the Boards. Ninety-six Boards and agencies cover the more important industries. In the building trade, up to 1905, the Conciliation Boards were local only in their character, but that in that year a national scheme was formed. This scheme, however, at present does not apply to London.

Rights to Water.

SOME curious questions as to rights to water were raised in the recent case of The Company of the Proprietors of the Birmingham Canal Navigation *v.* Kynoch (Ltd.). The plaintiff corporation had vested in them by statute a canal running through Birmingham together with certain basins and works connected therewith; they were also under statutory duty to maintain the canal and works and to supply sufficient flow of water to keep the canal navigable. One of the statutes relating to the canal (5 Will. IV. c. 34, sect. 82) provided that all persons using steam engines for manufacturing purposes situated within 200 yds. of the canal should have the right to draw water by pipes for the use of these engines provided an equal quantity was returned every day less the necessary evaporation, but the water was to be applied to no other purpose. It was alleged that the defendants had recently been discovered to have been using water for other manufacturing purposes. The defendants alleged that by prescriptive right they were entitled to use the surplus water, having done so for twenty-two years, they also asserted that a basin which contained water abutted upon property sold by the plaintiffs to their predecessors, and they claimed to be entitled to the water *ad medium filium* in this basin. The Court held, that no prescriptive right had been made out, and that the plaintiffs, being a company incorporated for the benefit of the public, were not entitled to make any grants in derogation of their duties to the public, and therefore that a grant if made, of the right to use the surplus water, or of that part of the basin adjoining the defendants' land would be void, and that on these grounds the defendants were not entitled to the water claimed. It was alleged that the water illegally abstracted amounted to 6,000,000 gallons per annum, but in ordering an account to be taken of the value of this water the Court of course limited the period to the six years preceding the issue of the writ.

Building Contracts and Highway Traffic.

A CASE of considerable interest has recently been reported in the official Law Reports—that of the Lancaster Rural Council *v.* Fisher. It settles an important point for contractors and builders. Under the Locomotives Act, 1898, expenses incurred by a highway authority by reason of damage caused by extraordinary traffic are recoverable by an action. But there is a limitation to this right for the action must be commenced "within twelve months of the time at which the damage has been done"; or, if the damage is the consequence of any particular building contract or work extending over a long period, not later than six months after the completion of the work. In the case in question there was a maintenance clause in the contract under which the obligation of the contractor to keep up the works extended for twelve months from the time when the engineer certified the works were completed, and it was argued for the highway authority that the six months did not begin to run until the expiration of the above twelve months. But the Court of Appeal held that the time ran from the actual completion of the work which caused the damage. We confess that the question is one which it is surprising should have been decided by the court of first instance in a different manner. However, the Court of Appeal has now given a clear and, if we may say so, a common-sense decision, which will prevent future difficulties from arising on this point.

The Assuan Dam Talus.

SINCE the completion of the protective works on the downstream side of the Assuan Dam, ample evidence has been afforded concerning the practical value of the new talus. The western half has now stood the strain of two floods and one summer without damage of any kind, and while the eastern half has been tested during only one flood, it is satisfactory to learn on the authority of Sir William Garstin that not a single stone has been displaced. The difference in the action of the water as it leaves the sluices is said to be very striking. Instead of thundering down upon the river bed and causing a boil and a turmoil beyond description, the water now glides out from the sluices in a thin sheet with little action upon the apron. Sir William Garstin adds that the dam is now as safe as it is possible for man's hands to make it, and its future may be regarded with absolute confidence. Of course it will be necessary to make periodical examination of the protective apron, but as low walls have been built dividing the work up into sections it is very easy to lay dry any portion simply by closing the corresponding sluice gates, while water continues to flow from all the other openings. Commenced in 1905, and finished before the flood of last year, this work is one more proof of the thorough manner in which the late Sir Benjamin Baker attended to the practical details of everything to which he set his hand.

A New Wireless Telegraphy.

PROFESSOR J. A. FLEMING described to the Physical Society last week a new method of wireless telegraphy on which he has been experimenting. The experiments were carried out in the quadrangle of University College, and although on a fairly large scale they produced absolutely no disturbing effect on neighbouring telegraph or telephone wires. The principle of the method adopted is the same as in the earliest forms of wireless telegraphy, namely, electromagnetic induction. He uses, however, currents, obtained by means of a Poulsen arc, of such excessively high frequency that they cannot possibly have any effect on telephones or telegraphic apparatus. He uses also a tuned secondary circuit, the induced currents in which he can detect by means of his exceedingly ingenious oscillation valve. The results prove that for long distance work the intermittent spark method invented by Hertz and used by Marconi, is probably superior to the arc method. Professor Fleming suggests that his method will be a useful addition to the other methods of wireless telegraphy, as the signals of one do not affect the other. All that is necessary is to set up in a field a number of short wooden posts with telegraphic insulators attached to them. These support bare copper wires, making a large closed circuit parallel to the earth. If cows, horses, or sheep are in the field the wires will have to be 7 ft. or 8 ft. from the ground. A similar tuned circuit being set up at the other station, signals can be sent and received by the ordinary devices employed in radio telegraphy. In the discussion it was suggested that the position of underground metal pipes or conductors in the University quadrangle might explain some of the anomalous experimental results obtained. If this prove to be the case it seems to us that Professor Fleming's method might prove of use to the mining engineer in locating metalliferous deposits.

Chelsea Generating-Station.

WE hope that the decision made by Mr. Curtis Bennett in the case of the Chelsea Borough Council *v.* the Underground Electric Railways will not have the effect of discouraging local authorities from pursuing offenders against the law forbidding the emission of black smoke from boiler chimneys. In the case now in point the Borough Council were only able to adduce very slender and unconvincing evidence to support their prosecution. It was proved to the satisfaction of the magistrate that the so-called black smoke emitted from the chimney was only dark-brown; but, coming out in a column 19 ft. in diameter, it had very much the appearance of black smoke. While not suggesting that brown smoke is a desirable addition to the atmosphere of large cities, we think Mr. Curtis Bennett could not have decided for the prosecutors in this case, and we quite indorse his remarks concerning the debt of gratitude which Londoners owe to the Underground Electric Railways Company for the conversion of steam railway services to electricity and the construction of new electric railways in the metropolis.

Leyburn Rural District.

THE Report of Dr. W. E. Fletcher to the Local Government Board on the Sanitary Circumstances and Administration of the Leyburn Rural District points out a very unsatisfactory state of things in regard to water supply to many of the villages of the district. At Bellerby the principal supply apart from the brook is a two-inch pipe carrying water from springs in a hollow by the side of the Leyburn-road, known as "Frog Hole"—a somewhat significant title. The spot is stated to be open to pollution by cattle. A brook runs through the village between the road and the houses, and is resorted to by many of the inhabitants for water supply, in spite of the fact that it receives in its course drainage from manure heaps, cow byres, and from some of the houses. The Report states that there is no difficulty, except expense, in furnishing this village with an ample supply of good water brought by a pipe from higher ground. At Hunton, a long straggling village, are two brooks, both used for water supply, and both liable to pollution. The same story, with variations, is told of other places in the district. The drainage appears to be also conducted in a most haphazard way; "there is no definite system, and each owner of property appears to provide such drains and traps as he pleases, or, alternatively, to leave his property undrained." The Report sums up as follows:—

> Inspection of this district has revealed just such conditions as to sanitary circumstances and sanitary administration as was to be anticipated, seeing that it has never been under the supervision of skilled officers, either in the capacity of Medical Officer of Health, or in that of Inspector of Nuisances. The District Council and their predecessors, the Rural Sanitary Authority, have never had the advice of properly trained officers, and they have consequently been, as it were, groping in the dark. Such action as has been taken with respect to water-supplies has resulted mainly from private enterprise, and except in the cases of Leyburn, Middleham, and Harmby has not been due to the initiative of the sanitary authority. The provisions of the Public Health (Water) Act, 1878, have been completely ignored. Such drainage schemes as exist are imperfect in design and unsatisfactory in character.

The London School Board Offices.

AS A question has been raised as to whether Mr. Bodley was or was not the architect of the original London School Board offices, we have inquired into the matter, and we are now able to state, on good authority, that the building must correctly be regarded as the work of the firm of Messrs. Bodley & Garner, and that it is not possible to say what exactly was the share of either architect in the design. At the time it was built Messrs. Bodley & Garner did not separate their work in the office. It was only at a later period that, by common consent, each partner carried out his own work individually.

The Ancient Egyptian House.

THE lecture on the Ancient Egyptian House given by Professor Flinders Petrie at the London Institution on Monday was for the most part an exposition of the curious series of "soul-houses" found in various Egyptian sepulchres, which were exhibited some little time since at University College, and were mentioned at the time in our pages. Photographs of the whole series were exhibited successively on the screen, and Professor Petrie pointed out the gradual development of the house from the simpler to the more complex forms. These model houses, he said, no doubt represented the chief forms of Egyptian house at a time long anterior to the models themselves. At the commencement of the lecture the audience were also shown a series of plans of ancient Egyptian houses, from the most important form of mansion with fifty or sixty rooms down to the labourer's cottage with only three rooms and a porch. These plans are simply the drawing out to scale of houses which have actually been found in plan on the ground—*i.e.* the foundations of the walls were there, giving the complete plan, though everything above ground had perished. There are some curious similarities between these and some more modern forms of house. The close similarity between the hall of the Egyptian house, with its central tank and colonnade round the tank (or column at each angle of it), and the *atrium* of the Roman house, is so remarkable that we thought it might have received more notice than a mere passing reference. The almost universal recurrence of the porter's lodge or room, close to and generally facing the main entrance, is a curiously modern kind of point in these plans of some 3000 B.C. Professor Petrie spoke for an hour, without a note of any kind, expounding the whole subject with the same ease and fluency as if he were reading a written essay: a model lecture.

Chapel of the Ascension and the Burial Ground, Bayswater-road.

MR. FREDERICK SHIELDS has nearly completed the series of oil-paintings for the chapel which was erected two or three years ago in place of the former chapel for the burial ground in Hyde Park-place, of St. George, Hanover-square,

after designs by Mr. Herbert P. Horne. The cost was defrayed by the late Mrs. Russell Gurney, who also bequeathed a sum of 7,000*l.* in trust for the upkeep and improvement of the large graveyard in the rear, on the east side of Albion-street. The graveyard, extending over five acres, was formed in 1764, on ground close to Tolmin's Farm. The St. George's vestry obtained a faculty for its repair and improvement in 1894, when it had fallen into a sorry state of neglect. There were buried Laurence Sterne, to whose memory a stone was long afterwards erected near the west wall by two freemasons, J. T. Smith (1833), Paul Sandby (1809), and Mrs. Anne Radcliffe (1823). In a vault under the chapel was buried General Sir Thomas Picton, who fell at Waterloo (his remains have been removed to St. Paul's), and in the chapel were set up memorials to John Webber, who as draughtsman accompanied Captain Cook on his second voyage of discovery, and to Mrs. Jane Malony (1839), with the curious inscription ("a superb drawer in water colours which was (*sic*) much admired in the Exhibition Room in Somerset House. . . . For of such is the Kingdom of Heaven") which is almost identical with an equally ridiculous epitaph at Pewsey in Wiltshire. The eastern portion of the old chapel, containing the memorials, forms an annexe of the later building.

Messrs. Agnew's Gallery.

MESSRS. AGNEW'S annual exhibition on behalf of the Artists' General Benevolent Institution is, as usual, a small collection of exceptional character; twenty-seven pictures, several of which are masterpieces, all of which have their special value. The great attraction, to our thinking, is Gainsborough's "Cottage Girl," well known by scores of engravings and other reproductions; a picture of absolute perfection in style, feeling, and composition, and which is alone worth a visit to the Gallery. His "Pastoral Landscape," opposite, raises questions, the trees are so very conventional in detail; but it is a fine composition and with great subtleties of colour. Murillo's "St Thomas of Villanueva," the boy-saint, taking off his clothes to give them to the beggar-boys, hangs at the top of the room, and in a sense is probably regarded as the leading attraction, as Murillos are less common in this country than Gainsboroughs; but though it is interesting to see a typical boy picture by Murillo, it does not show him at his best; and even at his best Murillo is a painter easily overrated. Among the most noteworthy of the other pictures exhibited is Reynolds's "Ino and Infant Bacchus," showing Reynolds's colour at its best but not his design. The same painter's noble and classical portrait of "Viscountess Townshend" looks as if it had been more or less painted on or restored, but this (if it be so) detracts in no way from the dignity and grandeur of line of the figure. Of the Gainsborough portraits the finest is "Lord de Dunstanville," whose costume, with the blue coat and amber waistcoat, is treated with Gainsborough's usual success in giving the effect of strong colour without any crudeness, a success not so complete in his "Lady de Dunstanville," which is rather theatrical in style. A remarkably characteristic portrait is Romney's "Miss Lawrence," a lady with a highly-interesting countenance, seated leaning back in an attitude which gives a fine line to the composition; there is a slight but effective indication of landscape and sky background. Raeburn's "Mrs. Hay" is a fine solidly-painted portrait (the head looks rather too small), but it is prosaic in comparison with Gainsborough, Reynolds, and Romney. Among the landscapes is Constable's "Salisbury Cathedral," in which the whole side elevation of the cathedral, in the middle distance, is painted with an accuracy and firmness of line which might be a lesson to some painters of the present day who paint architecture like mud.

The New English Art Club.

AMONG its various uglinesses, crudities, and absurdities—among which the worst are the sketches of figure subjects by Mr. A. E. John, which we understand it is now the fashion to admire—the present exhibition of the New English Art Club at the Dering-yard Galleries contains some good things. Miss Alice Fanner, a landscape artist whom we have always considered too good for her surroundings in these exhibitions, exhibits a beautiful sunshine effect in her "September Morning, Datchet" (75); and Mr. Mark Fisher's "Late Spring" (83) is a small landscape quite in his best way. Mr. William Orpen's interior with a portrait figure of the Hon. Percy Windham (84) seated in the middle of it, the head in a high light, is a really fine thing, and the head is actually finished with care and delicacy—a rare point in these exhibitions. How the artist who painted this could bring himself to exhibit also such a thing as "Young Ireland" passes our comprehension. Mr. Tonks's life-size painting of a girl under the title "The Birdcage" (108) has much vigour and brilliancy of light and colour, though the head seems too small. Mr. Sargent's "The Brook" (86) is a powerful sketch, as also his larger one, "The Moraine" (56), which should be looked at from the other side of the room to be properly appreciated; what he has been about in "The Fountain" (63) we cannot profess to understand. Mr. Sydney Lee is admirable again in his architectural subjects; "The Inn with the Whitewashed Roof" (72) is the best, but they are all good, and contrast favourably with the crude treatment of architecture in various other paintings in the exhibition.

United Arts Club.

WE do not exactly understand what is the *raison d'être* of the Society exhibiting under this title. It has, however, filled the Grafton Gallery with oil-paintings and water-colours, where some very good pictures are to be found among a good many things of rather mediocre interest. Among the larger works worth note are Mr. Leslie Thomson's fine landscape, "Peaceful Summer" (64), which in composition rather recalls Troyon, though the handling is different; Mdme. Canziani's portrait of "Mr. Butcher" (63); Mr. Coutts Michie's portrait of "Miss Michie" (78), a fine full-length of a young lady in a furred cloak with a red dress beneath it; the same painter's landscape, "The Wane of Sunset" (97); Mr. Tracey's "The Derelict" (91), in which he owes something to Mr. Somerscales, but it is an effective sea picture, only the sky is a little too solid-looking. In Mr. Spenlove's two large landscapes on the coast of Holland (77, 137) he seems to have been rather influenced by Maris; or is it that the same causes produce the same effects, and two pictures of Dutch atmosphere naturally produce the same kind of sky and composition? The pictures strike us as a little too spotty in effect; they have not the reserve and unity of Maris. Among smaller works we noticed two small reliefs on the entrance staircase by Mr. Richard Garbe (12, 13); Lady Butler's brilliant sketch of "English General's Syces, Cairo" (33A); Mr. Solomon's small figure picture called "Incense" (40); Mr. Hugh Arnold's "The Seine near Andelys" (122) with some most picturesque little buildings rising out of the water; and Miss Osborn's landscape entitled "Strayed" (150).

The Modern Gallery.

MRS. JARDINE'S exhibition of water-colour sketches on the Rhine and in Switzerland at the Modern Gallery rather disappointed us, after the impression made by some admirable works of hers at the Dudley Gallery Art Society. The artist has a special faculty of representing snow scenes, either in open country or in towns and in connexion with buildings; when she gets out of the snow the artistic inspiration seems rather to wane, and the rest of the works are merely adequate water-colour sketches, in which the buildings are carefully treated. But it is only the snow scenes which have the interest of a definite style.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE opening meeting of the seventy-third session of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, Regent-street, W., Mr. Thomas Collcutt, President, in the chair.

Admission of an Allied Society.

The minutes of last meeting having been taken as read, the President announced that the Cape Institute of Architects had been admitted by the Council to alliance with the Royal Institute of British Architects, under by-law 27.

New Institute Medal.

He also presented to the Institute the new Institute medal designed by Mr. George Frampton. It was, he said, a very beautiful work of art, and he thought it would be an incentive, not only to the future students to gain it for the sake of the medal, but also for the sake of the possession of a very great work of art. Mr. Frampton had kindly designed and carried it out for the Institute, and he moved that a very hearty vote of thanks be sent to him.

This was unanimously agreed to.

Deceased Members.

Mr. Alex. Graham, Hon. Secretary, said that since the last general meeting in June they had lost several of their members, by death, *i.e.*:—

Thomas Turnbull, of New Zealand, elected a Fellow in 1884;

Nathaniel James Stranger, senior architect in the office of Woods and Forests, elected Associate 1882;

Augustus Eldred Hughes, elected Associate 1878;

William Leck, of Johannesburg, elected Fellow 1904; and

Richard Lloyd Williams, of Denbigh, elected Associate 1856.

The Late Mr. Bodley.

To these names he added with sincere regret that of George Frederick Bodley, who passed away a fortnight ago, full of years and of honour, full of enthusiasm for the art he loved so well, and hopeful to the very last that he might live to carry out the many monumental works which had been entrusted to him in recent years, not only in this country, but in distant parts of the world. The Institute was represented at the funeral on October 25, which took place at Kinnersley, in Herefordshire, by Mr. Bryan, member of the Council and President of their allied society at Bristol. A memorial service was held at Kensington on the same day, and was attended by several London members, although unfortunately very short notice was given. The President, on behalf of himself and the Council, wrote to the near relatives of their highly-gifted colleague, expressing his sympathy with them in their great loss they had sustained. He asked them all to honour in word and thought the memory of their distinguished Fellow and Royal Gold Medallist. Mr. Bodley was one of those who sustained the highest traditions of Gothic architecture. By individual thought and effort he succeeded in maintaining those traditions to the end, and his work would be regarded with respect and admiration for many generations to come. Several short biographies had appeared, but in the next number of their *Journal* there would be a memoir of a very interesting character—a sketch of a remarkable artistic career, penned by Professor Simpson. He had the privilege of moving the following resolution :—"That a letter be sent on behalf of every member of the Institute tendering their sympathies with the relatives of our lamented colleague for the loss of a highly-gifted and much-loved man, and expressing at the same time our sincere appreciation of his many eminent services rendered to the world of art throughout a long and distinguished career."

The motion having been agreed to silently.

Members attending for the first time since their election were formally admitted by the President. Amongst those attending was Mr. Paul Ogden, President of the Manchester Society of Architects.

New District Surveyors.

The Secretary announced that at the October Statutary examination fifteen candidates were examined, and that seven had passed and had been granted by the Council certificates of competency to act as District Surveyors under the London Building Act, as follows :—Messrs.

T. J. Bee, Sidcup;
P. Boothroyd Dannatt, Greenwich;
R. H. Jewers Mayhew, Anerley;
H. Blinman Mackenzie, London;
J. Douglas Scott, London;
T. P. Tinslay, Chelsea; and
Stanley Towse, London.

It was announced that there were nominations for fifty-one Fellows and thirty-three Associates.

President's Address.

The President then read the following address :—

"Ladies and Gentlemen,—In opening this the seventy-third session of the Institute my first duty and pleasure is to thank my brother architects for the confidence they have shown in electing me for the second time to the position of President, and I desire to express my gratitude to the Council for the courtesy, forbearance, and loyal support which they continually afforded me during my term of office last session.

In reviewing the work and the proceedings of the last session it is with very great pleasure that I refer to the striking success of the visit to Edinburgh and the annual dinner there in July last. It is, however, much to be regretted that there was not so full a representative attendance from London and the provinces as one would have wished, and as the occasion demanded. This may have been due to several reasons, such as the inclemency of the weather during last summer, the distance from London, and consequently the length of time that was required for the visit. It was satisfactory to note that a very fair proportion of the Council were present during the whole of the proceedings. There were present nine Fellows besides many members of the allied societies. The programme of proposed visits to buildings prepared by the Edinburgh Architectural Association was a highly interesting one. The opening meeting was a reception given in our honour by the Lord Provost and the Magistrates, which was attended by a large and representative gathering of the citizens of Edinburgh, and was a very brilliant success, and highly appreciated by the visitors.

Holyrood.

We were conducted over many buildings of exceptional interest, of which none, I think, appealed to us more than the Holyrood Palace and Chapel.

The latter building was the object of close study on the part of the visitors. Beyond the acknowledged beauty of its architecture especial interest and consideration was given to the very important subject of restoration, a question which has given rise to a keen controversy among the citizens and architects of Edinburgh. It will be remembered that a considerable sum of money was devised by the late Lord Melville to be used at the discretion of an architect nominated by him in a complete restoration of the chapel. Very many prominent architects and other authorities, however, have expressed considerable alarm at any restoration of one of the most interesting remnants of mediæval work.

The consensus of opinion among the visitors appeared to be very strongly in favour of non-restoration, the general verdict being that it was only desirable to devise some simple means of protecting the upper parts of the walls from the ravages of rain, frost, and snow, and that very little need be done in the way of repairing. It was thought that restoration would practically mean rebuilding the greater part of the chapel, and adding a new roof and vaulting. At present there is no roof, and the greater portion of the north arcade has practically disappeared. In fact, it was felt that restoration on such a large scale would practically mean that a new chapel would arise, and that much of the work of our forefathers would be obliterated, or at least renovated out of all knowledge. As it now stands this building forms a monument of mediæval work, beautiful in design and workmanship; and properly protected it would continue, for ages to come, to afford an example of a phase in our art which can never be reproduced.

By the courtesy of those in charge of the palace, we were enable to visit the suite of private apartments not generally open to the public, and these rooms we found to be of quite exceptional interest and beauty. This work is of the latter half of the XVIIth century; it acquires additional interest from the fact that something more than tradition exists as to the workmen employed in modelling and carrying out the various ceilings. These ceilings are of great beauty of design, and the modelling of the plasterwork ranks among the best ever produced in this style. The greater part is said to have been modelled *in situ*. We are shortly to have a paper on "The Royal Palaces of Scotland," by Mr. W. T. Oldrieve, the architect who has charge of these palaces on behalf of the Government. The subject is a most interesting one, and it may be confidently anticipated that Mr. Oldrieve, with his great knowledge of the subject, will treat it with the appreciation it deserves.

Public Interest in Architecture.

I think we visitors were much impressed by the intelligent and keen interest in architecture displayed by those gentlemen present at our meetings who were not members of our profession. Their evident desire to encourage the production of what is best in our art must be as gratifying as it is fortunate for our Edinburgh brethren. In Edinburgh this interest and enthusiasm is not confined to the exhibitions of pictures and the permanent art galleries; it is generously accorded to our art both in public and private enterprises.

I think this feeling is not as evident in London as it is in the large provincial centres. Perhaps the reason is that a closer personal relation between the public and the architect exists in provincial centres than is possible in our overgrown London. For instance, I cannot but feel that the Corporation and the London County Council as corporate bodies show only the slightest knowledge of architecture. I think I may say that not a dozen architects of repute and position are known to either of these corporate bodies; whereas in the smaller cities, such as Edinburgh, architects and public bodies are better known to each other, and perhaps in consequence of this the citizens have more knowledge and greater appreciation of our art.

In the northern capital the rise of the younger men is watched with interest and pride, and they are thus encouraged and stimulated in their careers. No less interest is taken in the work of those architects who in the past have created the buildings that adorn the city of Edinburgh, and make it one of the most beautiful in the United Kingdom. Human beings, and especially artists, are so constituted that they demand sympathy, encouragement, and appreciation. In the smaller communities this is given more freely and more generously than is possible, I fear, in our unwieldy London.

The Charter and By-laws.

I now ask your permission to refer in a few words to the position of affairs in regard to the proposed revision of the Charter and By-laws. In a note in the *Journal* of July 27, 1907, it is stated that "the recommendations of the Council for the revision of the Charter and By-laws were duly brought forward and considered at the special general meeting convoked by the Council for the purpose, and held on Tuesday, July 2. These recommendations were the outcome of the Council's report on the resolutions respecting the question of registration passed at the meeting of April 3 last year. This report was presented to the General Body, and was adopted at the meeting of March 4 last."

At this meeting, in response to a question from a member, I ruled that Associates had no more right to vote on matters concerning the Charter than they had to vote on matters concerning the By-laws. The question as to whether Associates had this right came as a surprise to me, as it did, I believe, to most of the Fellows present at the meeting. I had to decide this matter on the spur of the moment. It appeared to me that if Associates had the right to vote on the revision of the Charter they would be in a position to move and carry a resolution giving them by Charter a right to vote on matters concerning the By-laws. This appeared to me to be contrary to the whole spirit of both Charter and By-laws, and I ruled against the gentlemen who had brought forward the question. The business of the meeting then went forward without interruption, excepting that about half a dozen Associates left the room; but this, of course, did not affect the number of voters. There were still many Associates in the room, and we had the benefit of their suggestions and criticism in considering the whole document before the meeting.

The recommendations of the Council were carried with some slight alterations. Upon the question being put whether these recommendations should be forwarded to His Majesty and the Privy Council for approval, a unanimous vote was given in the affirmative by a show of hands. A special general meeting to confirm what had taken place was then called for July 15. In the meantime a communication from an Associate enclosing counsel's opinion as to my ruling was received by the Secretary; this opinion was an adverse one. The matter was then considered by the Council, assisted by their legal advisers, and they arrived at the decision that the whole of the proceedings of the meeting of July 2 were invalid. I announced this decision to the meeting of July 15, which therefore was immediately closed.

Had the question of the rights of Associates not been raised, the document relating to the revision of the Charter and By-laws would have been at once submitted to the Privy Council prior to going to Parliament for a Bill.

The delay is a matter of great regret to the Council, who had hoped to be in a position to assure the Institute that this

important reform in their constitution was likely to be legally established before next Christmas. Their regret is the keener because the question of the election of Fellows, which was to have been on a different basis, may have to be left open for an indefinite period. This point, however, will be submitted to the consideration of a general meeting at an early date.

None can regret the delay caused by my decision of July 2 more than I do myself, but I do not intend to make any apology for my action on that occasion. As I said before, I consider that the whole spirit of the Charter and By-laws is against the presumption that Associates can have a vote in either case. I firmly believe that, with very few exceptions, this is the opinion of the whole body of members, both Fellows and Associates.

It is sincerely to be hoped that the consideration of this important matter will be prosecuted with vigour and without unnecessary delay during the coming session. The question has to a large extent engrossed the attention of the Institute for nearly four years, and I believe that it has done so to the detriment of other important matters.

I have no wish to minimise the gravity of the question, but I think there are other subjects which should receive our serious attention—subjects which, in my opinion, may better serve to further the object for which the Institute was established, namely, the advancement of civil architecture. It must be remembered that the number of capable and experienced men who can devote a considerable amount of time to committee work is naturally limited; at the same time, one need not anticipate any difficulty in forming strong committees to consider the many important matters that should engage the attention of the Council in the coming session.

Architectural Development of Towns.

Among such questions are the architectural development of towns and suburban areas, the possibility of legislation respecting building by-laws, and the laws of light and air. The latter surely call for careful consideration by architects, not so much in their own interests as in that of the building owner. Until architects take definite measures to secure reform in this direction, I am afraid that little will be done, and that there will still be vexatious and unjust impediments placed in the way of those who are obliged to build. In this connexion Mr. Simpson's suggestion that a Building Board should be established * deserves the consideration of those who see the necessity for reform, both in Building Acts and in the laws of light and air.

The Institute would do well to take a more prominent and active part in the support of such societies as that for the Preservation of Ancient Monuments, the National Trust for Places of Historic Interest or Natural Beauty, the Society for the Abatement of the Smoke Nuisance, and other similarly useful institutions.

In speaking a few words on the subject of the architectural development of towns and suburban areas, I must ask your forgiveness if I refer for a moment to my address of last year. It may be remembered that I then made a suggestion that the South of London could become an integral part of the City of Westminster by means of the erection of "street bridges." I did not then know, or it had escaped my memory, that in an address previously delivered here a suggestion had been made, not entirely dissimilar to my own, but differing from it in that the idea conveyed was not that of complete street bridges, but of the addition of covered ways to existing bridges. In his address of November 2, 1903, Sir Aston Webb said: "The widening of London Bridge is in full progress, and the temporary covered footways on either side suggest what picturesque and welcome adjuncts they would be to our bridges. These, the most exposed portions of our roadways, cannot be crossed in wet and windy weather without great discomfort, which these covered ways would entirely obviate." I have drawn special attention to these words of Sir Aston's because I wish to apologise for my ignorance of them when I addressed you last year. It is a most surprising fact that no enterprising person discovered and drew my attention to my omission on that occasion, or since.

It gives me great pleasure to emphasise Sir Aston Webb's words by repeating them to-night. I still adhere to my former belief in the desirability of street and shop bridges, but, failing the possibility of these, I think Sir Aston's suggestion should receive the closest consideration. Could not suggestions of this character be brought directly to the notice of our civic authorities? Surely it is advisable that the opinions of experts should be made known to these bodies.

A step towards that end was taken when at the close of last session a Committee was appointed by the Council to deal with the architectural development of towns and suburbs. This Committee was appointed in accordance with a recommendation of the Art Committee, and in consequence of a statement in Parliament by the President of the Local Government Board to the effect that the Government had before them Bills "to carry out what is immediately pressing" on this important matter. A full Bill is promised at an early date.

The Art Committee were of opinion that this great question should receive the fullest consideration, and the Council entirely concurred in their opinion. It would be difficult to suggest a question of greater interest to architects, and affecting more intimately the art they practise, than this one of the development of towns. The business of the Committee will be to make themselves acquainted with the work in this direction that is being done by other countries, notably by Germany and by the United States.

Competitions.

During the last year we had several competitions which were of interest in many ways. I need not refer to that for the Hall of the London County Council except to say that it gave rise to much discussion and criticism, and to no little animadversion; but on the whole the conditions of this competition received the approval of the Institute. The result, as you are aware, is not yet known.

There are two other competitions, however, which I think call for some remarks from me.

There always has been, and probably always will be, a strongly antagonistic feeling towards the principle of selecting an architect by means of open competition. Generally speaking, I do not consider the arguments against competition to be either very sound or very convincing. I think it may be admitted that our art has made considerable progress during the last thirty or forty years, and during the last few years especially this progress has been very remarkable. The advance may not always have been in the right direction, and certainly much that has been done is open to adverse criticism. But results must be judged in a broad and generous spirit. The fact that open competition has been the rule is, I maintain, one of the causes why the art of architecture has advanced so wonderfully of late years. I therefore consider that, in spite of certain obvious drawbacks, open competition is beneficial to our art. I believe that our younger men are continuing the advancement of architecture in a manner quite admirable; and it is not too much to say that some of them, even the most distinguished, might have been left in obscurity had it not been that they were able to make known their genius by means of competition.

I have dwelt at length on the question of competition because I wish those who compete fully to understand that my sympathies are entirely with the competitor. They will therefore, I hope, listen with patience and forbearance while I make a few remarks, and those of an emphatic nature, in reference to two competitions which have recently taken place. I refer to those instituted by the Bethnal Green Local Board and the Acton Local Board, the latter being still in the open market. I use the word "market" advisedly, because in employing this term I wish to protest against the tendency to engage in competitions merely as a means of increasing business opportunities, and at the expense of what is due to our art and to our position as members of an honourable profession. It should be our aim to oppose what is harmful in the spirit of commercialism; we should not send our wares to any market that is open to us, regardless of whether the conditions are honourable to our profession or not. On the other hand, if we enter into competition in a healthy spirit of emulation, and maintaining the just tradition and dignity of our profession; if the unsuccessful make generous acknowledgment of the deserved success of those more fortunate than themselves, then I think competition may be regarded as beneficial to our art, and also to those competing.

I have tried to indicate what may be called the ethics of competition, and the conditions under which competitions should be conducted.

It is with great regret that I feel called upon to refer in this connexion to the want of judgment shown by certain architects in entering the competitions referred to above—that is to say, those instituted by the Bethnal Green and Acton Local Boards. I hope I shall have the sympathy of members of the profession of all ages and degrees in criticising the lack of perception of these competing architects.

The conditions published by the Bethnal Green Local Board were not at all in accordance with the suggestions issued by the Institute for the conducting of competitions. No guarantee was given that the successful architect would be employed, and it was stipulated that the remuneration should include any possible work in the way of arbitration, ancient lights, or any other legal question that might arise, in spite of the fact that these matters are never included in the recognised fees sanctioned by the Institute and by universal usages.

On being invited to nominate an assessor my attention was drawn to these conditions, and I endeavoured to prevail on the Bethnal Green Board so to modify the objectionable clauses in their condition as to meet the views of the Competitions Committee and of the Institute. But any possible influence the Council or the President might bring to bear on their attitude was very much weakened by the fact that architects were known to be preparing designs, and would submit them, notwithstanding the veto against the competition published in our *Journal*. Eventually, however, and after several interviews, the Board acceded to my wishes; the competition was then placed on a proper footing, and I was enabled to nominate an assessor.

When my decision to decline to appoint an assessor was made public I received remonstrances from several architects, not always couched in courteous terms; these, however, entirely failed to convince me that my first decision was an unwise one, and I venture to think that my decision was justified by the sequel.

As I have before said, I am a believer in the system of competition, but I feel very strongly that those members of the Institute who enter the lists should do so in a spirit of honourable enterprise, and that they should be actuated by *esprit de corps*, and should loyally support the Competitions Committee called into existence by themselves and for the purpose of protecting their interests.

I fully appreciate the struggle many of us have to make to gain a practice, and the consequent desire to enter into competition, but competitions should be entered into only when the conditions are fair and reasonable. Those gentlemen who in a thoughtless manner consent to compete, while ignoring the usual conditions under which competitions are instituted, are doing an injury to their more conscientious brethren and lowering the tone of the profession.

With regard to the competition for the Acton Municipal Building, I must ask you to allow me to recall the circumstances so far as they affect the Institute. In the first place, a competition took place, which was adjudicated upon by Mr. Macvicar Anderson, and the successful architect, Mr. Hunt, prepared designs and obtained estimates. The lowest estimate, however, was in excess of the sum the Local Board had at its disposal, and the design was abandoned; Mr. Hunt was paid his fees for this work, and again instructed to prepare plans for a modified scheme. This he did, and a contract between him and the Local Board was then drawn up, and the official seal was to have been affixed at the last meeting by the then Council. Attention, however, was drawn to the fact that this meeting had been called on

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* *Journal*, April 14, page 414.

the day after the official year had terminated, and therefore the stamping would be illegal. It was then arranged that the document should be sealed by the new Board. But the new Board determined to abandon Mr. Hunt's second scheme, and instituted a second competition. Mr. Hunt then applied for payment of his fees due on the work he had done. The Acton Local Board then took the extraordinary step of repudiating Mr. Hunt's just demands on the plea that their contract with him, approved and drawn up by the Board, was invalid by reason of the official seal not having been affixed.

The matter was first brought before our Competitions Committee and the Board of Professional Defence, and ultimately before the Council of the Institute. The Council agreed with the recommendations of its Committee that under the circumstances the competition should be vetoed, and a notice to that effect was put in the *Journal*.

It was felt that if a public body could thus take advantage of a legal quibble there was nothing to prevent them recurring to the same tactics in the forthcoming competition, and that, in fact, it was inadvisable for any architect to have dealings with a public body who were acting in a manner which in a private individual would not be considered as honourable. It was also felt that as strong a protest as possible should be made against such extraordinary treatment of one of their brethren.

The Council having vetoed the competition, I, of course, could not nominate an assessor when invited by the Acton Board to do so. I quite concurred with the action of the Institute.

I believe that some members of the Institute were not satisfied with my refusal to nominate an assessor, and that directly or indirectly they were instrumental in bringing to the notice of the Acton Board the name of an architect who was willing to undertake the duties of assessor. The result was that this gentleman was invited and has consented to act. I felt it my duty to place before him the facts of the case, but I regret to say that he was unable to take the view adopted by the Institute and by myself as President.

With regard to the necessity of architects demanding a sealed contract when employed by corporate bodies, my experience, and on inquiry I find that of others, is that such a practice is seldom resorted to. However, I understand that the appointment of the gentleman now acting as assessor to the Acton Local Board is under sealed contract.

School Hygiene.

In July last an International Congress of School Hygiene was held in London, and I then had the honour of presiding over the section devoted to school building and equipment. On this occasion many papers were read, the greater number of them being in German. No doubt all these were of the greatest interest, but very small audiences were present, and I cannot help thinking that had the papers been read in English the attendance would have been larger, and the discussions which followed would have been more apparent and more satisfactory. Among the work in other sections a paper on the lighting and ventilating of classrooms, by Sir Aston Webb, calls for especial notice. This paper dealt not only with the title-subject, but also with school planning generally, and should be invaluable to architects engaged in school building.

St. Paul's.

It will be remembered that the Committee appointed to inquire into and to report on the condition of St. Paul's made an interim report, dealing with the proposal to construct a sewer, the site of which would have been in close proximity to the south-west corner of the Cathedral. This report had the desired effect of preventing possible disaster.

The full report to the Dean and Chapter was of a reassuring character, and allayed the public feeling of keen anxiety in regard to the stability of the church. I think the expression of concern from all quarters serves to show what veneration and love is felt for Wren's masterpiece.

It is with great pleasure that I announce a paper on St. Paul's Cathedral shortly to be read before the Institute by Mr. Mervyn Macartney. We may confidently anticipate that this paper will be one of absorbing interest, dealing as it will not only with the architecture, but also with the rich and varied history and associations of the Cathedral.

Crosby Hall.

The question of the destruction of the historic building known as Crosby Hall has occupied the attention of the public for many months. Its survival is justly considered of great importance from an antiquarian and historical, as well as from an architectural, point of view. Built in the year 1466, it remains almost the last example in the City of London of the continuity of English architecture before the advent of the Renaissance. Crosby Hall is one of the few buildings in the City that antedate the Great Fire. It is therefore a most important link between our own time and the Middle Ages. I believe the only other genuine mediæval works remaining in the City are the Tower of London, the Chapel of Ely House, and the Temple Church, with its adjoining garden. For architectural and historical reasons the loss of either building would be irreparable.

The work in Crosby Hall is most excellent and instructive, the associations are of supreme interest, and the preservation of this fine building concerns not only architects, but the nation at large. We cannot afford to denude our capital of every valuable relic surviving from former times. Much has been already destroyed that might well have been spared, and it is an inevitable consequence of progress that much will still be sacrificed. But though the London of to-day must of necessity lose many of the features that endeared it to Charles Lamb, to Dr. Johnson, and to others of bygone years, surely we cannot struggle too hard against the devastating spirit that would spoil us of one of our most ancient civic buildings. We cannot expect or desire to oppose the progress of our day, but it behoves us to preserve and cherish those of our ancient treasures that can be saved. Not much of Shakespeare's London is left to us, but the places I have mentioned are all alluded to in his plays, and this should be a strong—I had almost said a sacred—reason for maintaining and cherishing such a work as Crosby Hall. When we read that the Duke of Gloucester commands the Lady Anne of Warwick to "presently repair to Crosby Place," or again that he bids Catesby to meet himself and Buckingham there, it is pleasant to feel that some portion of this house is still in existence; that its pavement has been trod by those who are immortalised by Shakespeare and is still left to us of a more prosaic age. Perhaps you may quite rightly charge me in being prosaic in dwelling at length on this subject, but in venturing to do so I am actuated by the feeling that so little is left in this City of the works of our forefathers, and so little of that work is known by the general public.

We have still some portions left to us of the Chapel to Ely House in London, but of the house all has gone; the garden lives in our memories by the work of Shakespeare.

Address to Students.

I am venturing on an innovation during the coming session in respect to the duties which are generally considered to be the especial privilege of the President. You all know that it is his duty, and I may also add his pleasure, to give an address to students some time in February, and I had the honour of giving such an address last session.

It occurred to me, however, that in a second address on the same subject I should more or less repeat the advice I gave in February last; and, although repetition may sometimes have value, there is a possibility that it may descend to tediousness, and, feeling this, I ventured to approach a gentleman who not only feels the keenest interest in architectural education, but who also brings to the subject great experience and erudition. It is with the greatest pleasure that I now announce that Professor Lethaby has very readily and generously consented to deliver the address to students in February next. I am sure that not only the students, but also the older members of the Institute will eagerly embrace an opportunity of listening to a paper by such a learned and cultured architect.

This innovation in the work of the coming session will not necessarily be followed by succeeding Presidents; they will, of course, act in accordance with their own judgment.

In bringing this short address to a conclusion, I must ask the pardon of my audience if they think I have touched on subjects of too controversial a nature. I feel, however, that one cannot be too earnest or too candid in dealing with matters affecting equally the welfare of the Institute and the advancement of architecture."

Mr. John Slater, in moving a vote of thanks to the President for his address, said that all the members of the Institute looked forward to his tenure of the chair for the second year with confidence, and they all wished their President a very successful year of office. The address had been devoted largely to matters of domestic policy connected with the internal administration of the Institute. The President had alluded to the new Charter, which, in consequence of difficulties which could not have been foreseen and which could not be controlled, was still in the making; but he (the speaker) was very glad to think that what two years ago appeared to be a very great and almost unsurmountable difficulty had been smoothed over. It was quite certain that in arranging for any new Charter they could not satisfy everyone, but he ventured to hope that they would all sink their individual proclivities and do their best to get a new, practical, workable Charter under which the Institute might go on with its proper work of fostering architectural education, and therefore the interests of the Institute and of their art. With reference to architectural education, the President had not alluded to any of the work of the Board of Architectural Education, which was so ably presided over by the late President, Sir Aston Webb. He (the speaker) was pleased to be able to state that that Board had met with much encouragement in its endeavours to codify and bring into line the various methods and systems of architectural education for the architect. They did not want any hide-bound uniformity, but they thought there ought to be a certain amount of unity and accord in the work of these architectural schools. It was felt at one time that possibly there might be some antagonism between the Board of Architectural Education and the Board of Examiners of the Institute, but he was pleased to say that, as was so often the case, when the two bodies met it turned out that the discrepancies were very much more apparent than real, and, in fact, they practically resolved themselves into certain terminological inexactitudes in wording. He held very strongly that the starting of the Institute examinations gave an impulse to architectural education all over the country which nothing else could have done; but, as one who had had a good deal to do with the examinations—and he though he could say it of all the examiners—he had no feeling of great respect for examinations *per se*. They looked at examinations simply as the method of testing the education of the student, and they had lately done a good deal in the way of showing that they were perfectly willing to accept examinations held by other bodies —universities and so on—as qualifying and exempting from the Institute Intermediate Examination. He had little doubt that the Board of Examiners would find little difficulty in bringing the papers which were set at the various examinations in consonance with the expressed views of the Board of Architectural Education. As to the subject of competitions, he sometimes wished almost that the word could be deleted from our vocabulary. He had taken a more or less active part in the concerns of the Institute during the last twenty-five years, and he remembered that twenty-five years ago there were very acrimonious discussions as to competitions then, and it looked as if there would be now. It was felt at one time that when they got the principle of an independent assessor acknowledged that all difficulties would disappear and the halcyon days for competitors would follow. Unfortunately, that was not so and while human nature remained what it is he was afraid it would never be. It was perfectly certain that in competition the man who had given the greatest thought to any design was the author of it, and he was pretty sure to feel that the person who selected another design had not given as much attention to the good points of the design as he might

have done, and that had there been another assessor the result might have been different. Perhaps that was so. It was not always bad to have a grievance, but was it good to keep on airing it? He strongly urged on those gentlemen who went in for competitions to accept honourably the award of the assessor, and not to be constantly contravening it. His experience and knowledge of assessorships was that an assessor went into the work with a good deal of diffidence. Apart from matters of domestic interest, the President had alluded to one matter of far more than domestic interest, for it concerned the community at large and the nation. He meant the question of open spaces and the dealing with suburban areas. He held very strongly indeed that the time had come when the Government ought to take the matter up, and that without delay, or we should be leaving to our descendants a legacy of troubles and difficulties far greater than we are suffering from now. They must remember that the congested areas—the slum districts of to-day—were the open spaces of fifty or 100 years ago, and it was only necessary to take a walk or a drive round the outskirts of this great city to see what was going on now. They might take West Ham and Ilford on the East, Shepherd's Bush to Uxbridge on the west, Cricklewood to Willesden on the North, and Clapham on the South; and they would see what was going on. Land went into the market when it was ripe for building speculation, and it was taken by building speculators, who put up rows upon rows of houses with narrow streets between them, and unless we took care these districts would be the slum areas of the future. He thought that an Act ought to be passed in Parliament empowering or almost compelling municipalities—because the same thing was going on not only in London, but in Manchester, Bristol, Glasgow, and elsewhere—when they saw that land round about their town was ripe for development that they should purchase a certain quantity and say definitely: Now this area shall be left for ever open, and not be built upon. He knew that the County Council had done very good work in obtaining as open spaces parks which they had formed, but as a rule they had been connected with private houses, which they had been able to acquire for the purpose; but they ought to go further than that, and they ought to be able to create and not only preserve open spaces around all our large towns. He concluded by moving a very hearty vote of thanks to the President.

Mr. Leonard Stokes, who seconded, said he thought he could claim that he had known their President as long, if not longer, than a good many in that room. Their acquaintance began about the time the Wakefield Town Hall competition was in the air, and he could claim that he assisted Mr. Collcutt to win the competition—his assistance he would not define, but he thought it largely consisted in blacking in the plans which Mr. Collcutt had drawn. However, in connexion with that competition it might interest them to know that Mr. Collcutt had made up his mind that he would win it, and he not only prepared one design, but also another, and he thought it would be, perhaps, advisable not to send in the second one as an alternative design, but to submit it under a different motto, and to alter the character of the printing and the colour of the tracings. He had two excellent chances, but Mr. Street, the assessor, said at once that the two designs were by the same man, and was ready to put either design first, so that Mr. Collcutt won the competition twice over, which was an interesting fact not known to many members of the Institute. He did not altogether agree with the President in his theory that competitions were advancing architecture generally. He could not help feeling that there was a sort of tendency for competitions to encourage clever paper designs without so thoroughly encouraging the end of the building itself. The competitor thought what was likely to win the competition rather than what was likely to look well if the building was ever put up. He suggested that as a possible danger. There were many able men, including the President himself, who had carried out buildings in a very able manner, but he doubted whether the general tendency was a satisfactory one, for no sooner had a man won one competition than he was after another—he had not done with what he had got, and he did not devote the time necessary to make it up thoroughly before he was competing for another work. What the President had said, and Mr. Slater had emphasised, they ought to bear in mind strongly, *i.e.*, that they were a body of architects, and whatever they did they should not encourage any competition the conditions of which were not satisfactory and not in accord with the Institute rules. And the assessor having decided, they ought loyally to abide by that decision. The part of the President's address dealing with the development of cities was most interesting, and they must thoroughly agree that there ought to be some great plan on which they could work. If they did not do something like that, their great-grandchildren would turn round and blame them for not having laid out some plan, in much the same way that we all wished now that Wren's plan had been carried out. We regarded that plan as a magnificent one, and think what a fine city it would have made of London; and in 100 years' time it would be wondered why we did not carry out a scheme instead of doing things that then would be pulled down and rebuilt at enormous cost. There ought to be a plan which they could lay before the municipalities as being suitable for carrying out improvements. That would enable future generations to obtain a city which they would be proud of. At present there were so many vested interests, that it might appear to be Utopian to suggest anything of the kind; but if we could not municipalise towns in fact they might do so on paper. He echoed the President's desire that the Charter question should be brought to a speedy termination. Several of them had been working on it for several years, and they all had the welfare of the Institute at heart, and wanted the matter settled in the best possible way. No one wished to keep the Associates out of their so-called rights; let them have their rights, but the Institute must go on, and if they had to wait so long for a decision on a particular matter it would not be for the good of the profession.

Professor Beresford Pite said that Mr. Stokes had taken out of his mouth the sentiments which had been in his own mind when he came into that room, for he felt that the enthusiasm which the President's work created amongst a generation which was represented by Mr. Stokes and himself had been one of the conditions which had led to his occupancy of the Presidential chair. The reputation made by Mr. Collcutt early in his career had been fully maintained, and if there had been a long step from the early step to that chair, every part of that step had been in the direction of steady and accomplished progress. He thought the Institute, and the younger men especially, were to be congratulated in having Mr. Collcutt in the chair, for he was so admirably fitted for the duties. The President required something more than the reputation of a London or provincial architect: he was essentially and necessarily a man of sufficient spirit and character to take the initiative and maintain it, and to speak his mind clearly and forcibly to his professional brethren in that somewhat fatherly way which was so appropriate. Mr. Collcutt had accomplished that admirably that night, and it would be for the good of the profession if the President's remarks on competitions were taken seriously to heart by those who most profited by them. In regard to the condition of affairs generally in the Institute, he was one of those who longed for the day when they would be able to forget their politics and resume their art. It seemed to him that there was an absence of high ideal in the architectural designs of the day. He did not think he was altogether senile, but he looked back to the time when Street and Penrose and others used to battle in that room over artistic matters—not over politics. The whole air was then full of high thinking and fine drawing and design, but now we were disturbed by worries about charters, registration, competitions, and any number of difficulties which these questions were bound to give rise to. Seldom did the real, vital question of what was the real condition of the art of architectural design in the present day amongst rising architects and practitioners get discussed there; but he was sure he was not wrong when he said that the burning question of the profession—the question that underlay all their work—was: when they were sitting down to design building and to draw something out of the vast eternity which was full of beauty and which they were to put upon paper and perhaps on the solid earth, what were they to do if they had no idea of beauty and no idea of making its acquaintance and of seeing it? Perhaps the best answer to that was to look at modern competition designs, for there was an abundance of them. English architects were taking again to making thick lines with ink, and they welcomed the chance of drawing in that way, but he must say that few competition designs to be seen nowadays awoke an enthusiasm for their own sake. With regard to the injustice of competitions, with regard to the non-professional standing of people who called themselves architects, with regard to any number of abuses, he would forgive everything if it ended in the production of beautiful designs. One would have little quarrel if the ultimate result was beauty. But was it? Was the architect so trained and so eager and enthusiastic in the pursuit of art that beautiful design resulted from the system? He was afraid it was not so. On a practical point: the Institute for a quarter of a century had had a Board of Examiners, and now there had lately been started the Board of Architectural Education; but, as Lord Rosebery pointed out on the previous Saturday in his inspiring address in opening the new training college for teachers in Southampton-row, what was wanted was a board for the examination of examiners. Both the Architectural Boards shunned the question of design—shunned it with deliberate intent. He should like Mr. Slater's Board to give an exhibition of designs by deceased candidates which had been submitted to the Board, and he should like to suggest to the Board the next time he attended the meeting that this was a subject on which they would have to go back on themselves, for it was a vital question which must be faced. It was a question of education, and as much so as the art of construction; and unless they could, without further obstruction, lay down the principles which constitute good design and throw to the winds that stuff about *de gustibus non est disputandum*, he was afraid they would not make progress in the art of architectural design. That principle might apply in other ways, but it did not apply to men who entered the profession to learn how to design. Unless we had a standard of beauty which was held by educated men, and unless the Institute could bring its influence to bear in the matter, the art of architecture would not advance.

Mr. H. V. Lanchester said he owed his appreciation to their President, who had not shunned contentious matters, and they admired him for doing so. He quite agreed with Mr. Slater in suggesting that competitors should take the decision of assessors in competitions without complaining; but the Institute had a great deal to do with the appointment of assessors, and had they done all they could to see that they got the right man—the man best suited for the particular competition? He was speaking generally of the policy of the Institute in that respect, and he thought that something might be done to get more continuity of policy in regard to competitions. He agreed with Professor Pite also on that subject, and as to the advantage of getting to work on real art in addition to dealing with practical requirements. As to Mr. Slater's suggestion that municipalities should buy land when it was laid out for building purposes, he went further and would say that when land reached an enhanced value, a certain proportion ought to be handed over to municipalities for open spaces. There was power to lay out streets of a certain width, for securing the provision of back gardens, etc., then why should not land be given up for improvements in the same way? It was quite within the power of the Government to bring forward such a proposal. He agreed with what Mr. Stokes said on the subject up to a point, but some of our official bodies were not educated enough to deal with such matters, and they should have, while the present state of official skill in these bodies in England was what it was, advisers selected from the architectural profession. They might

take the form of honorary advisory bodies appointed in the town concerned, and the result would be the production of a much better state of affairs.

The vote of thanks was heartily agreed to, and the President shortly replied.

The late Mr. Bodley.

Mr. E. P. Warren briefly thanked the President for his sympathetic reference to his late chief and master, Mr. Bodley. He and others felt deeply the honour and respect which Mr. Bodley obtained in that Institute, and they valued such expressions as they had heard that evening. Mr. Bodley was never known outside the Institute or within it, and his intimates were few, but it was his fortune to be one of those intimates, and one could not know him without appreciating the dignity of character and presence and his extraordinary and unique talent, and once more he thanked the President for his observations.

The meeting then terminated.

Next Meeting.

The next meeting will be held on the 18th inst., when Mr. Mervyn Macartney, Surveyor to St. Paul's, will read a paper on "The Present Condition of St. Paul's Cathedral."

THE SOCIETY OF "ARTISTS AT WORK."

THE Society of Artists at Work is holding its third exhibition this week in the Glasgow Royal Institute of Fine Arts. The title of the Society does not show that the workers are almost exclusively women; there is only one exception—a basket-maker, he represents soldiers and sailors. Labourers from Southampton send brasswork, and male natives doubtless have their share in the exhibits of the Missionary Aid Society's stall; but they are not shown at work, and this, rather than sex, is the distinguishing feature of the demonstration. What will perhaps strike visitors most is the simplicity of the paraphernalia involved in the several crafts: stitching-frame, the few chisels, hammers, and pliers for carver and metal-worker; the jeweller's lamp and blowpipe—at one stall a compact form of electric-heater is in use—about comprise the technical appliances required; beyond these it is really handicraft.

Possibly the pillow lace-workers' implements and their use are as interesting as any. The art is pre-eminently a feminine occupation, and their productions are charming; but some of the endless stripes of merely repeat pattern makes one tolerant of machine aid, even if the result were not so minutely delicate. With even more elementary equipment are produced the beautiful needlework in ladies' and children's garments, embroidered ecclesiastical vestments—for these last the Aubrey School is noteworthy—the skilful and sympathetic "restoration" of antique hangings, whether woven tapestry or tent-stitch, and some very dainty relief work in narrow ribbon on satin, in some instances on picture mounts under glass, a necessary precaution against dust. Another form of enriching textiles is by stencilling—a more rapid method than that of the needle, and effective. At the opposite extreme is hand-loom weaving, and the Stonehenge Woollen Industry show cloth of good colour. Some fancy varieties are for men's vests. Spinning is not represented.

Bead necklaces must necessarily be hand-strung, and they afford scope for taste in arrangement and in choice of colour; some very pretty ones are displayed. Beside sewn ribbons of smallest beads, there are woven bands of these, Indian fashion, for bracelets and guards. Indian seeds of all colours and shapes are also strung as beads are.

Jewellery naturally attracts many workers, there being so much of interest in the variety of materials employed and their manipulation, without the tediousness of sewnwork. Fortunately, there appears no attempt to rival the expert artist; ambition has been kept within limits, and a sufficient field has been found in the grace and fancy required for chains of twisted gold and silver wire, and in filigree-work clasping enamel, shells, and stones, leaving alone cameo and figure work in metal. The enamels are seldom intricate, for the most part translucent, though the opaque variety also appears. Generally, there is a lightness of treatment in metal and jewels that is quite appropriate, the delicacy of tint, say, in Stall 25 (Miss Newton and Mrs. Bethune), may be admired without disparagement of the more decided colours that, likely enough, are necessary for the personal adornment of some.

Beaten copper is a favourite decoration, and here too suitably treated in the main; no figure-work is attempted, and the floral ornament is not too naturalistic; interlacing Celtic ornament is not so much employed as one might expect. Some pieces have an iridescent colour effect given them by firing; oxidising is, of course, a well-established method, and for silver, too, it is used. Pewter is sparingly employed, though so adaptable a material. Inset enamel and glazed pottery buttons go well with metal and enjoy a current vogue. Some instances of repoussé plates slightly tacked on to glove-box or the like, key scutcheons, hinges, etc., show a want of finish that is the reproach of amateur work, art craft in particular. Leather work in dress is illustrated in waist-belts, suitably embroidered or tooled; but in motor head-dress is found a novel opening for the material. In binding of blotters and in picture-frames, the usual treatment is a chasing of floral design, or a panel of quasi-pictorial decoration; the absence of stamped work, in the form of powderings, for example, or of geometrical pattern is quite noticeable. At one stall is shown stain applied to leather with good effect, and there also is a cushion richly embossed, silver-gilt and part painted. Leather bookbinding is poorly represented; but sewn cloth and illuminated vellum covers are exhibited. The marqueterie is good—particularly some with slight festoons and fluting in Adam style at Miss Malet's stall. The effect of cream-coloured gesso on the greenwood of some mirror frames is excellent.

Woodcarving is only fairly represented, and there is nothing of highest class. Beyond chipwork for knick-knacks, there are frames, stools, and small tables, whose surface carving is commendably slight. An ingenious form of the latter has an elliptical top, hinged at the edges, and so turning up to form a rectangular tray, the legs folding to lay aside. Happily, there is no saw fretwork of the common objectionable kind; still thin fret may be effectively applied on a ground; but of this application there is none. Turned work and inlay are both absent.

The script lettering of Miss Black has been mentioned by us before; for public addresses and the like the art is needed. Applied to *menu* cards and inset on card-cases is a rather dainty use of narrow paper ribbon; its edges, gilt and coloured and crimped into shapes, showing like cloisonné wire. Mosaic it is called, but it is not that—a novelty only, showing deft fingering.

China painting is less in evidence than one might have expected; miniatures and portrait photographs are allied, and examples are shown. "Alstona," too, a species of crystoleum painting, as legitimate as tinted prints; and there is one case of fishing flies.

In this exposition of women's skill in art craft there is much to admire; in Glasgow, at least, it is a relief to find "new art" quite in the background. In sewn work especially it is to be wished the healthier examples shown will have an influence, and the ungraceful forms and figures in inharmonious purples and emerald green that have so long found favour give place to better models. The prices affixed to the different articles appear moderate. A good deal of printed information as to guilds of work, etc., is distributed, and there is a catalogue with a rather overpowering list of aristocratic patrons.

NEW SANATORIUM, OBAN.—The donors of the Argyllshire Sanatorium have, in addition to the gift of the funds for its erection, also purchased Benvoulin House and grounds, near Oban, and gifted them as a site for its erection. The plans of the sanatorium have already been prepared by Mr. Neil Gillier, of London. The present Benvoulin House will not be interfered with further than that additions will be made to it to adapt it as an administrative block. The sanatorium will consist of a pavilion for patients in the initial stage of the disease, an isolation pavilion for the accommodation of serious cases, a pavilion for paying patients, and a laundry block.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary general meeting of the Architectural Association was held on Friday last week at Tufton-street, Westminster, S.W., Mr. Walter Cave, President, in the chair.

The minutes having been read and confirmed, and some nominations having been read,

Mr. C. Wontner Smith, Hon. Secretary, announced a meeting of the Camera and Cycling Club, to be held on the 14th inst., when Mr. H. P. G. Maule will read a paper on "Cottages and Small Farms."

The following gentlemen were then elected as members, *i.e.*:—

T. H. Needham, Ealing, W.
O. G. Hunt, Hyde Park, W.
H. L. Geeson, Fortess-road, N.W.
F. S. Burt, Old Kent-road, S.E.
S. J. H. Prynne, W. Kensington.
R. Woolley, Wembley, Middlesex.
D. J. S. Dawson, Barking, Essex.
P. C. Mosse, Clapham Common, S.W.
C. T. Small, Rydal Mount, Reigate.
J. T. M. Whitelaw, Primrose Hill, N.W.

The Late Mr. Bodley.

The Chairman said he should like to make a short reference to the death of Mr. Bodley, who was not a member of the Association, but whose work was known to them all. Mr. Bodley was the most distinguished exponent of Gothic architecture whom we had had in England for many years, if not the most distinguished of the late Gothic revivalists, and his work showed great distinction and was full of very deep thought and beautiful proportion; he was the means of introducing an entirely different note into the Gothic work of this country. Mr. Bodley was a gold medallist of the Institute, and his personality to those who knew him was one of the most delightful—he was kindness itself—a man of a sweet disposition who was a poet as well as an architect; and his memory should long be remembered in England. He proposed that a letter of sympathy should be sent to the widow on behalf of the Association.

This was agreed to.

The Chairman announced a further donation to the Building Fund of 6*l.* 6s. from Mr. G. H. Fellowes Prynne.

Travelling Studies.

Professor W. R. Lethaby then delivered a lecture, entitled "Travelling Studies and Students' Drawings." He said there was, perhaps, hardly a subject which could be made so delightfully entertaining for them to hear about as the travelling studies of architects, and from many points of view. We might begin even a modern account of travel in search of architecture quite far back, and touch on various interests as they succeeded one another. There was the classical Greek phase in which English research led the world, and the Gothic study in which we also led, and we seemed to be the first again in arriving at a stage of general anarchy in study. The adventures and discoveries of travelling architects—Adams at Spalato, Wood and Dawkins at Palmyra, Stuart and Revett at Athens. Cockerell at Ægina and Bassæ—would make a most exciting and stimulating story. So also would the enthusiasms and wanderings of the early workers on mediæval architecture—old John Carter, recording so many things which had now departed from England; Cotman, almost discovering the great buildings of Normandy and making those wonderful etchings of them which remain still the most beautiful prints of architecture which we have ever produced; the incessant activity of Pugin; and Ruskin, drawing all the capitals of Venice with one hand, while he was hanging over the canals with the other. Or we might try to recall pictures of our own impressions—the first look at some great cathedral by starlight after a late arrival; the clear mornings, when the sky shone never so blue, through the fringes of the parapets, and the grey ancient masonry was adorned with wallflowers; the great views of Florence from the hills, Venice from the sea, the towers of Bologna against an evening sky, the drive to Sant Apollinare in Classe, Rouen from St. Catherines, and Laon from the plain below.

His purpose, however, was not to speak of these; nor was he going to argue for or against travelling studies, about which a good argument could doubtless be made out on either side. On the one hand, he thought,

it might be conceived that such studies might even be harmful as leading to desultory ways, a sauntering view of architecture, and even to discontent and disillusion. On the other hand, the seeing of some of the world with a purpose, the possibility of making small discoveries of our own, the entering into the great past of art were all, assuredly, wonderfully educative.

He passed by these ways of being certainly interesting and possibly even of being the most useful; for, after all, it came to one whether anything better could be done than by trying to stir up enthusiasm; whether clapping one's hands and saying "Go it!" and "Tally Ho!" were not worth more to students than uttering opinions, arguing systems, and urging that we should get better value for effort. It was these last dull and troublesome things, however, that he was going to ask them to think about; but in doing this he wanted the limitation clear that he was not arguing for the necessity of the study of ancient schools of art through all future time, nor was he urging the extension of the system. He did not even think that such study stood high amongst the architectural necessities of the day, and his subject really limited itself to this: Taking our facilities for study and our present methods of education for granted, how should they best be made not only productive, but reproductive?

What is Required.

The main things to be desired were definiteness of purpose and thoroughness of investigation. Without this definiteness of aim one might wander over half Europe without anything striking one, without anything having been really seen. This definiteness might come in many ways—best of all for their purpose, he thought, from having attained the proper architect's way of looking at things, the seeing the object whole, and then resolving it into its component parts, not the ornaments only, nor seeing it in its atmosphere like a painter, but as active structure. It might come from marking down a certain era, or a certain area, or it might come from having some other special interest for the time. But definiteness was essential. If they asked for a subject, he answered all subjects, for few have been attempted, and those that have could be supplemented. Few subjects had been attempted in the modern light, for things were not done once and for ever; they perpetually needed doing over again, so that we could say that nothing had yet been done finally. It was not a deep study of Gothic architecture to walk around Amiens and note the width of a buttress and the form of a diaper; then to go on to Beauvais and make a sketch of the towering apse as seen from the market-place; and then to pass to Chartres, and so on. As to the different forms of Romanesque in Europe, or even in England, that was nearly an untouched field. For Italy, every town might be the subject of investigation, as Ruskin investigated Venice. Pisa and Lucca, Siena, Bologna, and Rome remained—many Romes, indeed: antique, early Christian, mediæval. Better even than every town, every building of a certain standing and importance was a subject. If we might assume that the present type of civilisation was going to be long continued, every great building needed its special biography, for the time seemed near when many of them would only exist in books.

Then as to thoroughness of investigation, only thus did the thing seen enter through our thick skins to our hard hearts, and then only in small quantities—only at the end of a month did we discover some essential fact, and only thus could we begin to see the entire thing as made up of wall and roof and pier and arch as well as of cusp and pinnacle, colour-decoration, and other overlays.

As to Sketching.

One of the great heresies of the last fifty years was the sketching mania. He should like to say draw, but never sketch. It swallowed up enormous time, and resulted in nothing. Men he knew who had drawn carefully seemed to have more drawings than could be counted, for if they spent a week, or month even, over one study they soon increased, but the sketcher never got any forwarder. Drawings stood some chance of surviving, but sketches never. Nor did he believe that drawings should be finished up at home; other matters pressed, and they were put aside. Moreover, they would not work out; we could not decide whether a dimension should read 76 ft. or 96 ft., and one got disgusted. Drawings finished at home got something unreal into them with every added touch. Everything done on the spot was something struck off between the object and the artist; that which was added at home was all artist. Let him beg of them to consider the importance of the studies they might make from the point of view of records. A great loss of seriousness had come about in many departments of art work by looking on it as only done for self-improvement and practice. In art schools a similar custom had sprung up of students looking on their life drawings as a mere form of gymnastics; they were carried to a point, then fell from the board, and were trampled on the floor, and the result of all this was that most life drawing was a very hollow business indeed. Now, the masters down to, say, Alfred Stevens looked on life studies as material for reference. Drawings should be collected and treasured, and when done with handed on to some museum to be preserved.

The True Value of Scholarship Studies.

The central point of his story was really this: He did not think that students, or architects generally, or the public, had received sufficient return for the valuable yearly studentships which had been given for two or three generations, and the primary purpose of which was to encourage effective and productive study of old architectures. Properly, these scholarships were endowments for architectural research and culture, and must be double-sided in their aim, having a reference to the individual student and the wider public whose ambassador he is. The Institute disposed of between 400*l.* and 500*l.* a year in this way; the Royal Academy of about 150*l.*, and other bodies of 200*l.* or 300*l.* more. We might possibly estimate the total annual sum thus offered to students as about 800*l.* a year, which, capitalised—he believed this was the first time he had ever used that word—must represent something like 20,000*l.* He could not undertake to review what had been done as the result of this fine endowment, but at the highest estimate he could not think that the results could be considered other than disappointing. All these years French, German, and Italian scholars had been minutely studying works of ancient architecture, and recording their observations in fine volumes and in many special publications of learned societies. Here, we must confess, it was hard to point to anything which had been systematically studied and recorded by the holder of a scholarship, anything which went beyond the formal task essay. Indeed, to go outside of the student question for the moment, and leaving living architects out of the count, we might venture to ask what contributions to the study of ancient architecture in Europe had been made by Englishmen during the last fifty years? So far as he knew, the last important original work on classical architecture published by an English architect was the late Mr. Penrose's scholarly book on the "Principles of Athenian Architecture," while Mr. Street's study of "Gothic Architecture in Spain" was, he believed, the only one dealing with the mediæval styles of the Continent which had anything of a reputation, so that one might see it referred to in the footnotes of foreign books. Professor Willis's learned treatise on vaulting, which did have an immense effect on the continental criticism of Gothic architecture (an influence which might be traced to-day, through Viollet-le-Duc, in Choisy's clear analytical diagrams), could hardly be mentioned, as he was not an architect. It was somewhat mortifying, indeed, that this work, which had more of what should be the architect's way of looking at things than any other that our country had ever produced, should have been written by one whom we must call an amateur. But Willis, like Penrose, was disciplined in method. Our losses in this respect were manifest and manifold; while we did not take sufficient part in these things, we stood outside of European scholarship, and necessarily acquired the characteristics of provincialism—characteristics which react, he thought, on all we do by way of architecture, and finally, on London itself, which had well been called "a colossal village," or a "conglomeration of Batterseas." The loss in disciplined study to the architectural body and the individual was also momentous. Under the foreign system such study formed an opening to public art life, and a contribution to science. With us it had been for the most part a sort of students' picnic—haphazard, desultory, faddy; such as it must necessarily be when no lines were traditionally laid down. A student gaining one of these valuable scholarships was apt to drift through France and Italy making notes of superficial forms, sketches of picturesque corners, and water-colour drawings. The jottings, sometimes extraordinarily clever and individual, were brought back in various-sized notebooks and half-finished sheets, and from that time were apt to disappear, so that it was almost as great a marvel what became of the immense mass as what became of the infinity of pins. Systematic travelling study should be clear in aim, accurate in record, and lead up necessarily to publication. Indeed, it was the lack of this last essential corollary, the natural and necessary completion to their studies, which was one of the roots of failure. Nothing else would brace them up to discard vagueness and unreality.

What we had to desire was that complete studies of great Greek, Roman, and mediæval buildings would be made by our students up to the standard of French and German work, and he could not think that if they were forthcoming there would be any lasting difficulty as to publication. When some of these scholarships were founded means of publication were not so obtainable as they are now by our methods of reproduction; but he could not think that it was in the purview of enthusiasts like Soane and Pugin that collections made as a consequence of their benefactions should practically disappear.

The Institute Prize Subjects.

Let them turn to the particulars of prizes and studentships in the Institute Calendar—his copy, he found, was for 1904. The first application of the endowments he had been speaking of was the announcement of an award of 25 guineas for an essay on the "Delineation of Architecture." The first thing that struck him on this was, not that there was anything necessarily wrong in the subject, or the way that it was put, but that somehow it was obviously just an essay title "in the air." Those who set the subject and those who "wrote up to it"—if he might be allowed the phrase—were hardly likely to feel the pressing reality of the subject. Nobody wanted to know about delineation of architecture, and consequently there was a feeling of exhaustion and make-belief about the whole matter. He feared that former years might have been like it, for he found that in the seven years previous the prize was withheld four times, the contributions not coming up to essay pitch, whatever that might be. Who, indeed, was likely to play up to the situation when such questions were propounded, as it were in a vacuum, and when the answers remained by custom in oblivion? He could not help wondering, too, whether the essayists read the really classical utterance on architectural delineation by the late Mr. Emmett. This prize had now been given for twenty years, and it was not his business to be getting a character for intrusiveness and irritability, but he did want these things to be brought up to standard. The intention in the establishment of this essay prize could not have been to encourage mere exercise writing. He dared say all this because he did not know one of the essays, nor did he know where he could find them. It had not been the custom to treat them seriously, and he followed custom, and that was his complaint. To use the cant phrase, he complained of the system, not of the individual, and he could only wonder what a German University would do with such a rich endowment. The prize, it seemed to him, might be given on a set subject when it was desired to bring some branch of knowledge up to date; at other times it should be given for original researches, and all prize essays should be published as the standard introduction to the subject. Directly we want to know things it was easy to set real questions by the score and hundred. If even there were one standing question like: Give an account of the foreign architectural

literature of the year, with a bibliography, how valuable it would be!

We did not, he thought, expect enough of our students. It was taken for granted that their views could only be secondhand reflections, and at the best of only academic value. But the body of students, he ventured to say, were not properly merely infant practitioners. They might, if rightly guided and wisely ambitious, fulfil a function necessary for the whole body—the function of studentship. He more and more wondered at the gifts, aptitudes, and enthusiasms of the young men, and felt assured that it was only suggestion and proper channels for their activity that were needed—these, and the attitude of expectancy, not that of taking insufficiency for granted.

He came next to the measured drawings prize of 10*l*., which had been given for twenty-five years, and had brought forth nothing but good work. Still, he did not know where to lay his hands on the results, and he saw that under direction it would be a valuable means for exploration and record.

The valuable Soane studentship of 100*l*. followed. For fifteen years it had been of this amount, and for thirty years before that it was of 50*l*. That was, 3,000*l*. had been distributed in this way.

Then came the Pugin, the Godwin, the Owen Jones, the Tite, the Gressell, the Cates, and the Ashpitel endowments, and in all of them the vital and educative character of the exercises set had to be considered, and also the general utility of the answers and researches which followed. It ought to be possible to bring the general situation as to architectural education to bear on the character of those essays and projects and records, and to make the endowments a very valuable accessory. He would like to take one of the Institute prizes, that for measured drawings, for instance, and so shape the conditions that the examples selected for prizes should be central and safe of their kind, and should be drawn in a plain, unaffected way, with readable lettering all more or less uniform. They should then be taken over by the Institute, and be printed and circulated as standard examples in the schools. Was there any student who would not be disciplined by thinking that his drawing might form "Standard example No. 22"? The Association had for a great number of years published in their sketch-book delightful views and valuable measured drawings of various ancient buildings which formed now a collection of immense value: but this sketch-book had no direct association with travelling students as such, and it did not profess to publish minute analyses of historical monuments.

The Publication of Studies.

The practical aim of his paper was to suggest that a means should be found for the regular publication of worthy studies made by what he might call official students, the object being not only to increase the printed paper in the world, but to make study more thorough.

As to publication, books up to standard had to be bought by the important libraries all over Europe and America; and one further consequence of what he had been speaking about was that we had to buy foreign books, whereas the foreigners were not under the necessity of buying English books. Turning from this question of publication, he wanted to bring to the mind of students the fact that important new conditions as to thorough study had arisen within the last few years by the establishment of British schools in Athens and Rome, to some extent parallel to the French and German institutions in those cities: and that beside these other exploring societies, like the Palestine Exploration Society and the Egyptian Exploration Fund sometimes had work for young architects which was germane to their studies. To go out on a definite mission, self-imposed, or under the direction of others, stood in quite a different category to any amount of mere sight-seeing and note-taking. Another point which he had to mention was the old story of concentration which every virtuous lecturer dragged in, and which all students received in the orthodox way as a pious commonplace. But really it was quite true that plenty of one thing was infinitely better as a stepping-stone to even universal knowledge than a smattering of many things. Again, they need not be travellers to be students. They could learn much of foreign art in their museums if they would really study the things. To do this they needed first to be drawn to a special interest, and if they could not find what they were interested in it would not hurt to toss up. Then, after having a general view of the things and where they were to be found, it was necessary to read all that was known about them, with some reserve of doubt that all that was written need not all be true. Then they should look at the things again and again and compare them with all others that could be found, and at last they would be rewarded by noticing that what somebody had called a representation of a cow, was, in fact, a lion—not a large discovery in itself, but enough to show that the object had been studied.

In conclusion, he hoped they would understand that he had spoken entirely of ideals and principles, and that, least of all, had he had any thought of other than reverence for students and their works. Studentship should be a spirit not only for youth, but for all our lives. We saw in those who had it and in whom it lasted—Cockerell, Penrose, Pugin, and Street—types of mind which sweetened and honoured the calling to which they belonged. Granted that to some extent it might be a matter of natural bent, it was, he was sure, a matter of bent plus initiation. Without due discipline and leading perhaps two in 100 stumbled through to be amateur students, but with proper method and discipline he could hardly think that so many as two in 100 could remain untouched by its refinement.

The Chairman said they had listened to a lecture which had been a privilege to hear, and which had suggested several new points of view, and he would ask Mr. Millard to propose a vote of thanks to Professor Lethaby.

Mr. Walter Millard said he had the greatest pleasure in acceding to that request. Professor Lethaby had told them about travelling studentships, and he (the speaker) was one of the results of them alluded to, and he did not know how to defend himself, for he had done many of the things in the past that Professor Lethaby had referred to—made sketches, flitted about architectural sight-seeing, etc.—and having done these things and having seen others do them, including Professor Lethaby himself, he had gradually been coming to some of Professor Lethaby's conclusions in the matter, especially in regard to the importance of mastering one thing at a time. He had often thought that students need from the beginning to be set and kept to a method of study. The first thing for the student to do was to know and practise the right method of mastering a single building—no matter what size, or style, or what country it was in—and he should be taught how to grasp it as an organic structure. It should be possible to train a student to study a building, even if it was no larger than 10 ft. by 12 ft., so that he should get to know all that was ascertainable about it, and to delineate it, and to read it exactly as it is. If the student learnt for himself all about that one building, surely this would serve as a key with which he could unlock many of the secrets of any building he came across; and that would be his first stock of knowledge—the tool wherewith to pick the lock of further stores of knowledge. As to the question of the delineation of architecture, he saw many delineations of buildings which appeared to be done by men who had forgotten that they were students of architecture. They might be students of water-colour or pen-and-ink drawing, or anything else, but they did not appear to be students of architecture; or, as students of architecture, they had not grasped the idea that there were ways of studying and delineating buildings which were proper to architectural students as distinct from others. He was pleased that Professor Lethaby had referred as he did to Professor Willis, for he always admired the marvellous grasp on a building of a man like that, who was not an architect—which made it still more remarkable. He never looked at that author's book on Canterbury Cathedral without wondering how many architects living could take hold of a building like that and give, in a little book, its growth and structure as this book did. The way the subject was handled was a matter of wonder to him; and how few since Professor Willis had done anything on the same lines half as well, till we came to Professor Lethaby.

Mr. Theodore Fyfe, who seconded the vote of thanks, said he had been delighted with the address, but there was one little point on which he was at issue with Professor Lethaby. The lecturer spoke of the necessity of being definite and thorough, and of getting the architectural way of looking at things, and of getting a thorough grip of a building; and he spoke about making biographies of buildings. All this, so it seemed, was for the benefit of sketching and measuring which he afterwards seemed to decry to a certain extent. It seemed to him (the speaker) that in the study of buildings there was only one kind of sketching, *i.e.*, the thing which was struck off between the object and the artist, and in doing that he would not study any particular building, perhaps, but he would go about and seize what he wanted in this building and that building, in this style and that style, and fill his book with these things which were not of much value to others, but were of much value to the student; they were studies in the aggregate, and not sketches as such. Take the splendid sketches of Street; they were simply sketches struck off in this way, but with that sense of line and perfect grasp which Street could not help. He was quite certain that there was a great deal of purposeless sketching now which was of no value except to the student, and that kind of essential study of architectural work was not quite the same as the biography of a building which Professor Lethaby spoke about. He was in agreement with what the lecturer said as to systematic study; we had not enough of it in the sense in which the Germans have it.

Mr. Curtis Green, who supported the vote of thanks, said he thought that an architect who had much work to do enjoyed making those little harmless sketches to which reference had been made. The question he had in his mind while listening to the lecture was: Why should travelling studies be necessary? and he rather hoped that more would have been said on that side of the subject. Professor Lethaby, in his "Mysticism and Myth," quoted Sir Joshua Reynolds to the effect that design rightly understood was the gathering together of facts and impressions of one kind and another and giving them out again. The question was whether architects could do good work without storing up impressions of great buildings, and there was the larger question, in what way they were to store them up—whether they were to store them up for themselves or for purposes of archæological research. He was in Vienna recently, and he saw, of course, the Ring, that great street which runs all round the city. In one length of that street, in the space of half a mile, there are four great new buildings, erected about twenty-five years ago; in the centre was the Rathaus, opposite that was the theatre, on the left the Houses of Parliament, and on the right the University—four colossal buildings occupying about half a mile of street, and each of these buildings was in a different style, although built at the same time. One was Gothic, one Renaissance, one Greek, and one Roman-Tuscan; and they all struck him as being great works of architecture. The question was, why were they not all expressed in one style? He thought that those buildings were great from the scientific point of view—not from the creative, but from the copyist. They were absolutely thorough in their way, and were scientifically perfect, and expressed what they were wanted to express, and they were in the style they were because the minds of their architects had been attracted by different schools of architecture. As to our architecture, was it possible that out of these travelling studies we were going to evolve an architecture which would express what we wanted?

Mr. H. H. Statham, who also supported the vote of thanks, said Professor Lethaby had brought out and emphasised a view which we had rather forgotten, *i.e.*, that the results of study were very much lost, and that we should aim at the thorough illustration and publication of buildings. He quite agreed with that; but were there not two views of the objects of

travelling and sketching? There was the permanent study for the good of the whole world, and the separate sketching for the education of the sketcher himself. He did not feel disposed to despise sketching, as Professor Lethaby apparently did; and it was a curious fact that in modern times every architect who had been and was successful, and had done fine buildings, had been a good sketcher. He was struck with that when looking up the facts for an historical article on Sir Charles Barry, who, in his youth, was the author of many splendid architectural sketches, of subjects which had no special bearing on his after work. The sort of genius which made a man a fine architect determined him to make fine drawings; he had it in him, and in any case it was a harmless exercise and provided results which were worth looking at. But suppose a student to be travelling and doing no more than make pretty sketches of the outside of buildings. Did he not learn more, even if he did not measure, than he would have done merely by looking at them? Measuring and finding out the whole construction of the building was much more thorough, but a great deal could be learnt by that attention to proportion and detail in building which was necessary to make a good sketcher. And when a student was sketching and studying fine buildings it fired his imagination and excited his mind to do something as fine as that which he was sketching. That sort of sketching was not so useless as Professor Lethaby wanted them to believe. As to the essayists and the subjects set by the Royal Institute of British Architects, referred to by Professor Lethaby in rather a sarcastic spirit, the lecturer confessed that he had not seen any of the essays. He (the speaker) had not seen many, but there was a recent one which he had seen, which was a clever and useful essay. The subject was "The Influence of the Use of Iron and Steel on Modern Architectural Design." It was not a long essay, but it was an exceedingly good and critical exposition of the subject, containing a good deal of information compressed into a very small space. There was not much, perhaps, in the subject of "The Delineation of Architecture," but it was an interesting subject to write about; but again, there was the other use of the prize, *i.e.*, the education of the essayist himself. One of the objects of the essay prize was to encourage and develop the habit of thinking critically on an architectural subject, and putting those thoughts in a literary form. That subject of literary form was not to be despised, although it was not architecture or building, for it was part of education, and if Professor Lethaby had to read as much bad grammar and composition from year to year as he (the speaker) had, he thought he would agree that anything which tended to the improvement of the education of the profession was not wasted or thrown away.

The Chairman, in putting the vote of thanks to the meeting, said he agreed very much with what Mr. Statham had said, for it was when a man began to write about a subject that he realised how little he knew, and then it was that he read and studied to find out all he could for himself. He might remind them that he made this point a few weeks ago in his Presidential address; they should read the history of the period they were studying, and quite apart from the gain in literary expression, that was the only way to get at the bottom of a thing. There was one practical point in reference to the definiteness in study which had been referred to, and that was as to help which students needed. Very few of them could start off at the age of twenty or twenty-one and work, say, from Normandy into Italy, and really get the good out of it, if alone, that they would if properly instructed what to do and what to look for. He went to Italy with a vague sort of idea, and he found himself amazed at the variety of things of interest to be seen there. One did not know where to begin studying, and that was where the Association could be of such help. They had excellent masters who could give good advice to anyone going abroad, and put them on the right track. With that advice, if they then made one subject the object of their travels, they would find that that was the way to master it, and other subjects too.

The vote of thanks having been very heartily agreed to,

Mr. Lethaby, in reply, said he entirely agreed with Mr. Statham's observations up to a point. Undoubtedly there was good in sketching, in writing essays, in writing Sunday School essays, University Extension essays on this or that subject; but the point he made was that the subject he referred to hardly had the sort of title which should be given by a big society to a student who had reached years of discretion; it was not sufficiently vital.

Mr. Statham: I do not think it was a representative title; it was an accidental selection of one which did not accurately represent the whole.

Mr. Lethaby, continuing, said that the scientific essay which Mr. Statham had referred to was a good, definite, strong piece of work, but his case was that even when this was the case, the essay was not to be got, and they were not written with the idea of becoming the standard essays on the subject, nor were they set with that view.

The Chairman announced that the next meeting would be held on the 15th inst., when papers will be read by Messrs. J. S. Gibson and B. J. Greenwood on "The Relations between the Architect and the Builder."

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE second meeting of the Discussion Section of the Architectural Association was held at No. 18, Tufton-street, Westminster, on October 23, Mr. K. Gammell in the chair, when papers on "Gas *v.* Electricity" were read—that for electricity (which was submitted first) by Mr. R. J. Wallis-Jones, M.Inst.C.E., M.I.E.E., and that for gas by Mr. F. W. Goodenough.

Mr. Wallis-Jones began by giving a short sketch of electric lighting in buildings from 1880 down to the present time. One of the advantages of this system, he urged, was that should one circuit become faulty it was very easy to ascertain where the fault occurred; and electricity was an exceedingly safe light from a fire point of view. At the end of 1906 there was something like the equivalent of 7,650,000 8-candle lamps connected to the metropolitan electric light stations, exclusive of private installations, and, on referring to the record of fires taking place in the Administrative County of London for this period, he found that those due to faulty electric circuits were only 2·6 per cent.

Not only, he said, had the incandescent lamps been greatly improved, but developments had also taken place in connexion with arc lamps. The enclosed are now burnt for a very considerable time without trimming, and the light produced by such a lamp was better distributed and softer than that of the open arc, and more suitable for indoor lighting. By far the most important development in arc lamps was that of the flame arc, which was the most suitable lamp ever brought out for the lighting of large spaces and streets. They might also be used satisfactorily in buildings if proper ventilation was provided. The efficiency was very high, about 0·25 to 0·28 watt per candle, and the magazine types were suited to run up to about forty hours without re-trimming. Another interesting development was the mercury vapour lamp; but this light had a most peculiar effect on colours, owing to the absence of red rays. However unpleasant it might be to look at, there was no doubt, from the experience so far gained, that it was an exceedingly comfortable light to work with in a drawing office. He understood the latest forms produced 1 candle power for something like 0·25 watt. A new form was the Moore light, which was the first practical application, so far as he was aware, of the use of a vacuum tube for electric lighting. It was a very pretty light indeed.

Coming to another point, Mr. Wallis-Jones said the comparative cost of lighting for one hour a space of 500 sq. ft. with various types of lamps, the candle power allowed being 0·25 candle per square foot, or a total of 125 candles at 4d. per unit, came to: carbon lamp, 1·85d.; tantalum lamp, 0·85d.; Nernst lamp, 0·7d.; osram lamp, 0·62d.; enclosed arc lamp, 0·71d.; open arc lamp, 0·37d.; flame arc lamp, 0·14d.; mercury vapour lamp, 0·32d.; Moore light, 0·89d. A rough-and-ready rule which had been used with regard to the amount of light to be provided in a building was, that two 16-candle-power lamps per 100 sq. ft. of floor space would give a very fair general illumination, one 16-candle lamp for 33 sq. ft. would give bright illumination, and one 16-candle lamp for 25 sq. ft. would furnish a brilliant illumination.

Mr. Goodenough, in setting forth some of the arguments in favour of the use of gas, said that it was true that a few years ago many people were under the impression that lighting by gas was a doomed industry; but the advent of the incandescent mantle in a practical form and at a commercial price, coupled with the heavy cost of the electric light, changed all this; and they had witnessed the latest and largest railway-station in London (Victoria) lighted by gas, as a consequence of the experience of the railway company in the old station as to the economy (over 1,100*l.* a year) and the improvement in lighting effected by substituting incandescent gas for electric arc lamps.

On the basis of an average efficiency 25 per cent. less than the maximum, the following would be the cost of 1,000 candle-power for 1,500 hours spread over a year by the different systems of gas lighting, taking gas at 2s. 11d. per 1,000 cubic ft.: thirty-three 30-candle inverted burners, each consuming 1⅓ cubic ft. per hour, with renewal of mantles at 3s. per burner, 14*l.* 11s. 6d. without by-passes, and 21*l.* 12s. 6d. with by-passes; fifteen 66-candle upright gas burners, each consuming 4 cubic ft. per hour, with renewal of mantles at 3s. per burner, 15*l.* 7s. 6d. without by-passes, and 18*l.* 11s. 3d. with by-passes; four 250-candle self-intensifying lamps, each consuming 11 cubic ft. per hour, with renewal of mantles at 12s. per lamp, 12*l.* 0s. 6d. without by-passes, and 13*l.* 14s. 6d. with by-passes; two 500-candle high-pressure lamps, each consuming 16½ cubic ft. per hour, with renewal of mantles at 15s. per lamp, 8*l.* 15s. 10d. without by-passes, and 9*l.* 12s. 10d. with by-passes. The flame arc was the most economical electric lamp on the market, but was not suitable for interior lighting owing to the fumes emitted, to the fact that it could only be used in very large units of light, and because it killed all colour distinction owing to the peculiarity of its spectrum. All arc lamps, moreover, had the drawback of being unsteady and uncertain in the amount of light given, and were very trying to work or read under. With inverted arc lighting by reflection the light was better diffused, but the entire absence of shadow, making it exceedingly difficult to judge the relative distances of objects from the eye, was a decided drawback to this lighting. Broadly speaking, then, light for light, electricity as generally used for the lighting of buildings was from three to six times as costly as incandescent gas lighting, after securing to the user of gas the same convenience as that enjoyed by the users of electricity in regard to obtaining light at a moment's notice without the aid of matches. But the result of the difference between the amount of light with which the users of gas and electricity provided themselves was that, instead of the lighting bill of the former being only one-sixth that of the latter, it was more generally from one-third to one-half. Another fact to be borne in mind was that the installation cost of electric lighting was at least double that of gas lighting. As to danger, the fires and accidents due to electric currents were, statistics showed, proportionately more numerous than those due to the misuse or careless use of gas.

The reading of the papers was followed by a lengthy discussion.

Fifty Years Ago.

FROM THE *Builder* OF NOVEMBER 7, 1857.

THE HEALTH OF LONDON.

THE ninth annual report of the sanitary condition of the City of London, by Dr. Letheby, deserves the careful consideration of all who desire the welfare of the community. The facts stated in this report ought to have a great effect in rousing the energies of those who have charge of other communities. It appears that out of the City population of nearly 130,000 souls there died in the course of the year 2,904 persons. This

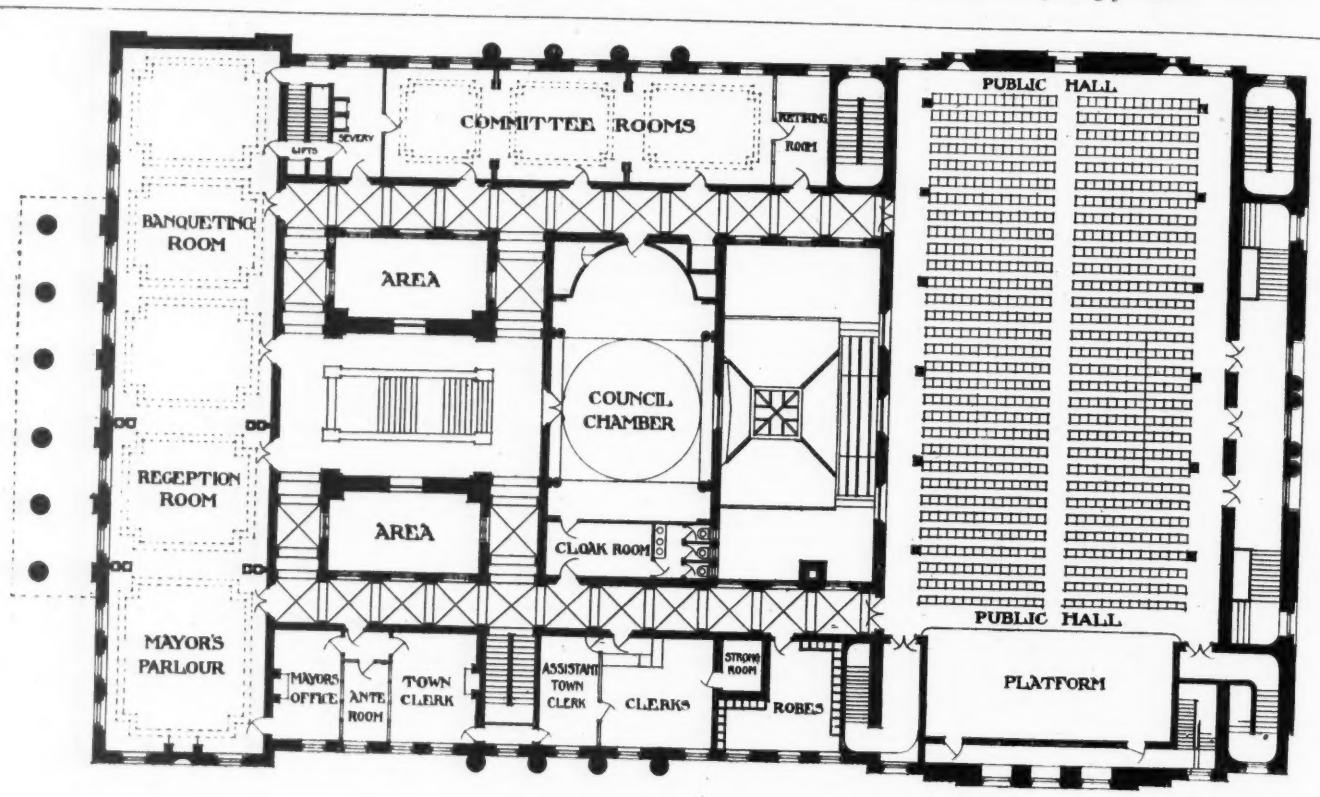
is at the rate of 22·3 per 1,000 of the inhabitants; or it is one death amongst every forty-five of the living. This is called 9 per cent. below the general average, and represents a saving in the year of 286 lives. We learn that it is only nine years since a proper health establishment was formed in the City, and that since that time the deaths have constantly decreased, and have been reduced from the annual number of 3,763 to 2,904, the number above stated. The difference is 859, or closely upon 1,000 lives; and it is well worthy of remark that this great saving has been mainly effected in one district, viz., the central.

We glean the following remarks:—"There are some places where the mortality is still high; in fact, a cloud of death is always hanging where the vitality of the people is slowly sapped and where disease makes easy conquest. It is not enough that these places are continually the haunt of such endemic maladies as phthisis, fever, and the other putrid class, but often they become the seats of stronger pestilence." Dr. Letheby remarks that it does not come within his province to discuss the means of education which will enable the poorer classes to properly appreciate and attend to sanitary arrangements, and continues:—"But I cannot help saying that there seems to me to be an easy way of doing it. Raise up but a few houses that are well adapted for the necessities of the poor, and you will soon find that they are strong incentives to the forming of better habits and to the seeking for better homes."

Illustrations.

NEW TOWN HALL, LANCASTER.

THE new Town Hall (which is a gift to the town by Lord Ashton) has a frontage to Daulton-square of 132 ft. and 220 ft. to the side streets, and the height from pavement to balustrade is 55 ft. Externally, dignity and impressiveness have been aimed at, and ornament sparingly used.



Lancaster Town Hall, Plans.

The tower, which is 146 ft. high, surmounts the dome over the main hall and staircase.

The lower ground floor is chiefly occupied by the police department, and the accommodation includes messrooms and day-rooms for the constables, charge office and cells; underneath that part of the building which is taken up by the public hall, there is a parade-room 92 ft. by 60 ft., and, in order that this room may be used for other purposes, separate entrances are provided from the street.

The main hall and staircase and the ground and first floor corridors will be lined with marble, and the principal rooms are panelled in oak.

The stone used for the building is Longridge, but, owing to the difficulty of obtaining this in large blocks, Darley Dale has been used for the columns and the cornices to the pediments.

The tympanum of the pediment over the main entrance will contain sculpture by Mr. F. W. Pomeroy, A.R.A., the general stone carving being executed by Mr. Gilbert Seale, and the wood-carving by Messrs. Waring & Gillow, of Lancaster.

The general contractors are Messrs. Waring & Gillow, and Mr. Michael Hague is the clerk of works.

The building will cost 110,000*l.*

At the southern end of the public gardens on the east of the Town Hall a fire-station is being erected, with a large engine-room, stabling, hose tower, recreation-rooms for the men on the first floor, and also in this building is the Weights and Measures Department.

The architect is Mr. Edward W. Mountford. The illustration is taken from the drawing exhibited at the last Royal Academy Exhibition.

"WHITE CLIFFE," EASTBOURNE.

THIS house is to occupy a fine situation, in the chalk, overlooking the Devonshire Park; advantage is taken of a nearly southern aspect for the terraced garden front. The entrance is approached from a walled drive on the eastern boundary.

The main walls are in deep red bricks, with portions in rough cast, the windows and dressings to entrance being in stone, and the roofs tiled.

The general finishings to the reception rooms, hall, and staircase are in oak.

Our illustration is from a water-colour drawing by the architect, Mr. Philip Tree, of St. Leonards-on-Sea.

NATIONAL PRIZE DESIGNS.—Nos. III. AND IV.

THE Spandrel sculptures in high relief, by Miss Wyness, obtained, together with a sketch design for a Mausoleum, a silver medal in the National Art Competition. They show a great talent for architectural sculpture, and we hope that the artist may have the opportunity of exercising her talents on some of the modern buildings in which, fortunately, decorative sculpture is much more largely introduced than formerly.

Of the two panels in low relief, by Miss Simmins, we can only gather the subjects from the quotations in raised letters on each panel. The upper one—"And then they rode to the divided way, there kiss'd, and parted weeping"—reads as if it came from the "Morte d'Arthur." The subject of the lower one is—"By Dubric the High Saint the King that morn was married." Both panels show a great deal of ability in the treatment of low relief sculpture, but the upper panel is much the finer design.

ORGAN-GRINDING IN PUBLIC THOROUGHFARES.

AT the monthly meeting of the Street Noise Abatement Committee on Saturday, it was stated that about 10,000 complaints and protests in respect to organ-grinding and other forms of street "music" had been received by the Association since its formation, whilst the local authorities and the police had probably received a far greater number. The following resolution was adopted:—

"That the time has arrived when organ-grinding—the bane of residential London life for more than half a century—should be absolutely prohibited in public thoroughfares, and when tramps and beggars with barrel-organs should be dealt with at least as rigorously as other tramps and beggars."

We cordially support such a resolution, and hope it may have some effect on public and official opinion in London, where this intolerable nuisance exists to an extent which is unknown, we believe, in any other city in the world. The argument sometimes put forward in its favour, that it provides the poor with music, is mere ignorance. Nothing can be more debasing to the musical taste of the people than to be constantly hearing vulgar tunes ground out mechanically, without expression or feeling, by a man of the lowest and most uneducated type. As to the nuisance to those who have work to do, and have to send away these noise-machines from before their windows, half a dozen times in the day, it is almost beyond words. The organ-grinder is worse than a tramp—he is a tramp with a nuisance added, and it is a disgrace to our municipal authorities that he has not been suppressed long ago.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Mr. H. P. Harris, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Battersea Borough Council 816*l.* for laying-out recreation ground, and Hampstead Borough Council 1,700*l.* for paving works. Sanction was also given to the following borrowings:—Deptford Borough Council, 2,921*l.* for town hall; Shoreditch Borough Council, 1,440*l.* for paving works; and Woolwich Borough Council, 30,000*l.* for street widening.

Rates of Wages and Hours of Labour.—The General Purposes Committee submitted the following Report, which will be considered at a subsequent meeting:—

Paragraph (1) of standing order No. B. 244 provides that the rates of wages and the hours of labour to be paid and observed by the Council in works which are in the nature of construction or manufacture, and which the Council may resolve to execute without the intervention of a contractor within a radius of twenty miles from Charing Cross, shall be the rates and hours set forth in the Council's list, which is based on the rates and hours recognised by associations of employers and trade unions and in practice obtained in London. Paragraph (2) of the standing order provides that contractors for works of the nature above named shall be required to pay wages at rates not less, and to observe hours of labour not greater, than the rates and hours in the Council's list. The radius within which the standing order operates was fixed by the Council on December 16, 1892, when it framed the standing orders as to rates of wages and hours of labour which are with slight alteration now in operation.

On November 30, 1897, the Council, when revising the standing orders as to rates of wages and hours of labour, altered the radius from twenty to twelve miles, the alteration being made as a result of representations made by the Institute of Builders and of objections raised before the Special Committee on the Works Department appointed in 1897, but on May 10, 1898, the Council decided to revert to the twenty-mile radius, and this radius still obtains.

The working rule agreements between the London Master Builders' Association and the several metropolitan trade unions recognise the London area, within which such agreements are operative, so that within a radius of twelve miles from Charing Cross, and the Master Builders' Association have represented that the variation between the radius adopted by the Council and that jointly agreed to by the Builders' Association and the trade societies is calculated to cause friction between employers and workmen, and to breed discontent among workmen engaged by the same employer on works in close proximity to each other. They further point out that the application of London working rules to the larger area materially increases the cost to the Council of works situated between the two radii.

We consider that the area, with a radius of twelve miles, agreed upon between employers and workmen should be that within which the Council's list of rates of wages and hours of labour should apply. The provisions of standing order No. B 245 will apply as regards employees on works executed by or for the Council outside that area. We recommend—

That the word "twelve" be substituted for the word "twenty" in the undermentioned standing orders:—No. B 244 (1) line 7; and (2) line 3. No. B 245 line . No. B 246 (1) (*a*) line 3; 1 (*b*) line 3; and (2) line 5. No. B 247, paragraph 4, line 3; Schedule Part I., line 3; and Part II., line 2. No. B 248, paragraph 2, line 15.

Notice of the following amendment to the recommendation has been given by Mr. Sanders:—

"That all words after the word 'That' in line 1 be omitted, and that the following words be substituted therefor—'the recommendation be referred back to the Committee.'"

Hammersmith to Harlesden Trams.—The Highways Committee recommended an expenditure of 69,300*l.* on capital account in respect of the construction on the overhead trolley system of electric traction, from Hammersmith-broadway, *viâ* Brook Green-road, Shepherd's Bush-road, Wood-lane, and Scrubs-lane, to Harlesden.

Dr. Beaton moved the reference back, and stated that two of the three miles of the proposed line passed through an unpopulated district, and, therefore, could not possibly be made to pay.

Mr. Gordon, who seconded the amendment, advocated large extensions in more populous districts instead of constructing short lines in sparsely-populated places.

Mr. Whitaker Thompson, the Chairman of the Highways Committee, in replying on the discussion, said this would be one of the most economical of the Council's lines, so far as the cost of construction was concerned, and was not in any sense a speculative undertaking, but was part of a system which he hoped would link up the outskirts of London. He had received that morning from the Board of Trade an official intimation that the use of the "G.B." system had been sanctioned for the reconstruction of the Mile End-road line, and as soon as that line was found to be working satisfactorily the Committee would at once proceed with the electrification of the northern system, and the lines in St. Pancras and Islington would be the first to be undertaken.

Dr. Beaton stated that, in view of Mr. Thompson's reply, he would withdraw his amendment.

The recommendation of the Highways Committee was thereupon adopted *nem. con.*

The Aldwych Site.—Replying to Mr. Pilditch, Lord Elcho, Chairman of the Improvements Committee, said he was glad of an opportunity of making a statement with regard to some facts about which there had been some misapprehension both in this country and the Australian Commonwealth. It was perfectly true that the Commonwealth did approach the Improvements Committee for a site in the Strand, and nobody regretted more than he did that so far the negotiations had not come to any satisfactory issue; but he need scarcely assure the Council that the Improvements Committee had no intention of closing, still less of locking, the door to further negotiations, and he believed and hoped that those negotiations would shortly be reopened. He thought it right, however, to explain to the Council the course of the negotiations so far as they had hitherto proceeded. The Council possessed land facing the Strand which was valued at 20s. to 12s. per square foot. They possessed one plot worth 20s., which he ventured to say was the finest plot of building land in London. The Commonwealth, with wise discrimination, pitched upon that plot first as offering a site for a Commonwealth building, but, with equal prudence, they only offered the lowest value that the Council was asking for any of the sites. In July they offered 13s. a foot for a depth of 70 ft., and the Committee, anxious to meet them, offered to accept 18s. a foot, which was 2s. a foot less than that at which it was valued. In October they got a further offer, but this time it was only 12s. 6d. a foot for a 60 ft. depth, with an option of renewal of the lease at a revaluation. The value of that small plot was *pro rata*, according to the Council's valuer, 10,256*l.* yearly, while the rent offered by the Commonwealth worked out at 7,121*l.*, or over 3,000*l.* less than they valued the land at. While those negotiations

were going on the Committee let the adjoining land, which was valued at 5s. a foot less, to the Victorian Government at 13s. per foot. The Council would, he thought, agree that, anxious as they were to let the land, and eager as they were to see the Commonwealth housed on their site, and ready as they were to make some concessions, they could not as trustees of the ratepayers give even the Commonwealth, at a price so far below its value, the best site they had to give. Therefore they had so far not seen their way to recommend the Council to accept the offer, although he had every hope and reason to believe that the Council had not made their last offer.

Widening Streatham High-road.—The following recommendation of the Improvements Committee was agreed to:—

"That, subject to the Wandsworth Metropolitan Borough Council consenting to the proposed tramway from the terminus in Streatham High-road to the county boundary at Norbury, and agreeing to contribute one-third of the net cost of the necessary street widenings, and subject to one-third of the net cost of the widenings being charged to the account of the improvement, the remaining third being charged to the tramways account, which will also be charged with the whole cost of laying down and paving the tramway track, application be made to Parliament in the session of 1908 for authority to widen Streatham High-road in general accordance with the plan."

Widening Green-lanes, Finsbury Park.—The Parks and Open Spaces Committee recommended, and it was agreed—

"That application be made to Parliament in the session of 1908 for authority to surrender, for the purpose of widening Green-lanes, a strip of Finsbury Park about 1,238 sq. yds. in extent . . . subject to the conditions:—(i.) That a new boundary fence shall be erected, and such other work as the Council may require to be executed at the park in connexion with the widening shall be carried out, by and at the expense of the Stoke Newington Metropolitan Borough Council; (ii.) that the Borough Council shall surrender its statutory power to acquire the mansion and two acres of adjacent land at Clissold Park as a site for public buildings in accordance with the provisions of sect. 5 of the Clissold Park (Stoke Newington) Act, 1887. . . ."

District Surveyors.—On the reception of the Report of the Building Act Committee Mr. Gordon asked the Chairman whether his attention had been called to the large number of cases in which the fees payable to District Surveyors and the Council had largely exceeded the cost of the repairs, and whether therefore the Committee would consider the desirability of substituting a definite salary for the present mode of payment.

Mr. F. Goldsmith, the Chairman, in reply, said it was a fact that the District Surveyors' fees in some instances exceeded the actual cost of repairs, but that was not a matter that was at all within the control of the Building Act Committee. They were statutory fees, and, as the hon. member would know, they had often had debates in the Council as to whether an alteration should be made in the method of payment, and the Council had always decided that it was not desirable to pay by salary instead of by way of fees.

Mr. Gordon further asked whether, in view of the great number of complaints that had been made by owners on the subject, the Committee would take into consideration the question of approaching Parliament with a view to obtaining some modification in the present fees.

Mr. Goldsmith replied that the Committee were now considering that question.

Road Widening.—The Improvements Committee recommended, and it was agreed—

That the estimate of expenditure on capital account of 750*l.* submitted by the Finance Committee in respect of the widening of Roe-bridge, Mitcham, to 50 ft. be approved.

That the estimate of expenditure on capital account of 1,325*l.* submitted by the Finance Committee in respect of the widening of South Lambeth-road between Wheatsheaf-lane and Old South Lambeth-road be approved.

Theatres, etc.—The following applications were agreed to on the recommendation of the Theatres and Music Halls Committee:—

"The general arrangements of a place of entertainment, to be known as the Dream City, proposed to be established on a site bounded on the south by Battersea Park-road, on the west by the London, Chatham, and Dover Railway, on the north by the river Thames, and on the east by some disused filtering beds (Mr. Bennett).

Additional sanitary accommodation proposed to be provided in connexion with the stalls, balcony, and gallery at the Foresters' Music-Hall, Cambridge-road, Bethnal Green (Mr. B. Crewe).

Main electrical cables, cable ducts, and switchboards proposed to be installed at the Franco-British Exhibition, Shepherd's Bush (Mr. E. White).

Certain small alterations proposed to be made in the basement and ground floor at the Inns of Court Hotel, High Holborn (Messrs. Durand, Murray, & Seddon).

A slight alteration proposed to be made in the seating at the rear of the pit at the Kennington Theatre, Kennington Park-road (Mr. H. B. Brandreth).

Proposed extension of the stage and a rearrangement of boxes on the dress circle and stage levels at the London Coliseum, St. Martin's-lane (Messrs. F. Matcham & Co.).

An hotel proposed to be erected in the Strand, Burleigh-street, and Exeter-street, on the site of Exeter Hall and St. Michael Church. Accommodation is shown for about 1,330 persons in the portions proposed to be licensed (Messrs. Allen & Son).

Proposed rearrangement of the seating in the stalls at the Royal Holborn Empire, High Holborn (Messrs. F. Matcham & Co.).

Proposed Wesleyan Methodist Hall to be erected in Princes-street and Tothill-street, Westminster (Messrs. Lanchester & Rickards)."

The Council, having transacted other business, adjourned.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Building on the Eastern Side of Tidal-place, Bermondsey.

A one-story workshop on the eastern side of Tidal-place, Bermondsey, at less than the prescribed distance from the centre of the roadway of the street (Messrs. E. Crosse & Co. for Mr. G. Whichelow).—Consent.

Line of Frontage and Projections.

Hampstead.—A bay window in front of No. 45, Lancaster-road, Hampstead (Waring & Gillow, Ltd., for Mr. P. Steinfield).—Consent.

Strand.—An illuminated sign at the Playhouse Theatre, Northumberland-avenue, Strand (Mr. E. Wingfield-Bowles for Mr. Cyril Maude).—Consent.

Wandsworth.—Sham half-timber work, oriel wood mouldings, and projecting hoods to six houses on the southern side of Stanthorpe-road, Streatham (Messrs. Brown & Barrow for Messrs. Dowsett & Jenkins).—Consent.

Wandsworth.—Wooden bay windows, wooden oriel windows and projecting porches to seven houses on the south-western side and twelve houses on the north-eastern side of Woodnook-road, Streatham (Messrs. Wates Brothers).—Consent.

Westminster.—A projecting one-story shop in front of No. 122, Victoria-street, Westminster (Mr. H. Chatfeild Clarke for Hudson Brothers, Ltd.).—Consent.

Paddington, South.—A building to be used as an office and stables, on the western side of Hormead-road, Paddington (Mr. A. J. Bevan for Messrs. Salter, Edwards, & Co.).—Refused.

Wandsworth.—One-story shops in front of Nos. 388, 390, and 392, Garratt-lane, Wandsworth (Mr. R. T. Hayes for Mr. A. Moss).—Refused.

Width of Way.

City of London.—A building upon the site of No. 21, Cock-lane, Giltspur-street, City, at less than the prescribed distance from the centre of the roadway of Cock-lane (Mr. G. D. Martin).—Consent.

Peckham.—Fences in front of Nos. 8 and 12, Wagner-street, Peckham, at less than the prescribed distance from the centre of the roadway of such street (Mr. W. Hooker for Mr. B. Gale).—Consent.

Width of Way and Line of Frontage.

St. Pancras, South.—A lift enclosure and guides on the forecourt of No. 24, Gower-place, St. Pancras (Mr. H. W. H. Palmer for Mr. H. K. Lewis).—Consent.

Width of Way, Line of Frontage and Construction.

Lambeth, North.—An addition to an existing projecting lavatory at the rear of No. 48, Waterloo-road, Lambeth, and abutting upon Howley-place (Ashby Brothers for Tyler, Ltd.).—Refused.

Formation of Streets.

Battersea.—That an order be issued to Mr. E. Evans, sanctioning the formation or laying out of new streets for carriage traffic upon the Batterseaarise House Estate, Clapham-common.—Consent.

Lewisham.—That an order be issued to Messrs. Hatch & Hatch, sanctioning the formation or laying-out of a new street for carriage traffic to lead from Old-road to High-road, Lee, and in connexion therewith the widening of a portion of Old-road (Mr. R. Trarey).—Consent.

Norwood.—That an order be issued to Messrs. Herring, Son, & Daw, refusing to sanction the formation or laying-out of streets for carriage traffic out of Tulse-hill and Trinity-road, Norwood (Mr. E. Lloyd).—Refused.

Dwelling Houses on Low-Lying Land.

Greenwich.—That a licence be granted to Mr. F. W. Saunders for the erection of dwelling houses on low-lying land situated on the western side of West-street, Charlton.—Consent.

Architectural Societies.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At a meeting of this Society held on Thursday, October 31, Mr. H. S. Chorley, President, in the chair, the report of the Council from May 1, 1906, to April 30, 1907, showed that the total membership on April 30, 1907, was 169, namely, 32 honorary members, 70 members, and 67 associates, as against a membership of 174 last year. The Report records that the silver medal and prize of five guineas given by the President for the best set of measured drawings of any ecclesiastical or domestic building erected anterior to 1800 A.D., was awarded to Mr. W. P. Rylatt for measured drawings of Methley Church, and Mr. Herbert Carnelly was given a bronze medal for his drawings of Howden Abbey Church. The prize of three guineas, offered by the Society for sketching, was awarded to Mr. W. P. Rylatt. The prize for construction, of three guineas, offered by the Society, was awarded to Mr. W. P. Rylatt. The prize for an essay, of two guineas, offered by the Society, was awarded to Mr. W. Whitehead. The prize of three guineas, offered by the Society for the best set of designs for subjects selected by the Council, was awarded to Mr. H. Carnelly. A second prize amounting to 1*l.* 1s. was awarded to Mr. W. Whitehead. The prize offered by Messrs. Halden, value four guineas, for four sheets of testimonies of study for the Royal Institute of British Architects Intermediate Examination, was awarded to Mr. W. Whitehead. The School of Architecture, under the auspices of the Society, in conjunction with the Leeds Institute and the Leeds University, is proving of great advantage to the associates in preparing them in the subjects required for the Royal Institute of British Architects examinations. The Council has been asked by the Royal Institute of British Architects to consider the advisability of changing the name of the Society, but they strongly protested against any change. The Council were also asked by the Royal Institute of British Architects to consider the private and confidential report of the Chartered Revision Committee on the recommendations of the Registration Committee, and they agreed with the general principles laid down. After the reading of the Report, the Hon. Treasurer then read the balance-sheet, which showed a balance in hand of 14*l.*

HALIFAX ARCHITECTURAL SOCIETY.—This Society held its first general meeting recently at the Mechanics' Institute for the purpose of electing officers and settling details for future working. There was a fairly good attendance of architects, both of those practising in the town and also the outer districts, as the Society includes not only the town, but the whole parish of Halifax, from Brighouse to Todmorden. The membership up to the present is thirty-two, being, with a very few exceptions, the total number practising in the parish. The following are the officials elected for the first year: President, Lieut.-Col. Gray; vice-President, Mr. L. Coates; Secretary, Mr. C. E. Fox; Treasurer, Mr. S. J. Glendinning; Council, Messrs. T. Kershaw, G. Nicholas, W. E. Horsfall, Jesse Horsfall (Todmorden), and W. H. Cockroft (Hebden Bridge). Mr. A. T. Longbotham was elected honorary solicitor to the Society. It was decided to hold an inaugural dinner some time towards the end of November, and the Council were empowered to make the necessary arrangements.

EDINBURGH ARCHITECTURAL ASSOCIATION.—Lord Kingsburgh, the Lord Justice Clerk, delivered, on the 4th inst., the inaugural address of the fiftieth session of the Edinburgh Architectural Association. Mr. Hippolyte J. Blanc, President of the Association, presided. Lord Kingsburgh, who took as his subject "Incongruity and Disfigurement," said to lecture to the members on architecture would resemble bringing

coals to Newcastle, and probably very poor coals at that. He had preferred to select a subject on which an amateur might speak with freedom, and to which that particular amateur had devoted some attention in the past. It was his purpose to call their attention to the incongruity of buildings with their natural surroundings or their surroundings as regards other already existing buildings. He desired to take his illustrations from a broad field; but, alas, he should not have to go far afield for many of them! Dear old Edinburgh would herself furnish enough of the material to fill a well-sized tome. Speaking of the proposal of the Corporation of the day to build the south side of Princes-street, Lord Kingsburgh said it was not too much to say that it would have irretrievably disfigured Edinburgh æsthetically, and probably ruined it also as a place of resort for thousands from elsewhere. The occasion was one in regard to which, not from a political point of view, every citizen then and since could say from his heart, "Thank God we have a House of Lords," for it was only by a judgment of that House that Edinburgh was saved from such a calamity. Turning to examples of incongruity of buildings with buildings erected at an earlier date on the same ground, he instanced Holyrood Palace, where the beautiful west doorway of the chapel had had its lines completely destroyed by the straight up-and-down corner of the Palace building being thrown right in front of it. Again, until lately they saw the arch front of the City Chambers' quadrangle fitted in with mean shops, by which the whole character of the frontage was destroyed. As regards incongruities by things done after buildings had been erected there was much room for indignation. Who did not recall with shame that the fine old Parliament Hall in Edinburgh Castle was for long filled in across the windows as a floor, turning it into a two-storied hospital for soldiers, with a hideous sewage pipe carried down the back of the rock through the ancient stone balcony there? What could be more shameful than that the little Norman chapel, behind Mons Meg, should have been for generations used as a store for gunpowder? Who of the present generation could credit that 30,000*l.* was spent in facing up the fine old rugged walls of St. Giles's with polished ashlar, completely destroying its character without, while the character within was completely ruined by lath and plaster partitions, turning it into three inartistic square boxes? The things that were done in that period of degraded taste were almost beyond belief. It was the same everywhere—Dunblane, Linlithgow, Dunfermline, Glasgow, Paisley—the gallery builder and the plasterer were the masters of the situation.—Sir Rowand Anderson, in moving a hearty vote of thanks, which was cordially given, to Lord Kingsburgh, said it was only by the public being educated through such addresses as they had just listened to that the present state of affairs could be remedied.

ARCHITECTURAL ASSOCIATION OF IRELAND.—At the opening sessional meeting of the Association on the 30th ult. the President (Mr. R. M. Butler, F.R.I.B.A.), in the course of his inaugural address, said that eighteen years ago there was absolutely no training whatever in Dublin specially devised for architects. He then went on to give an account of the growth of institutions for this purpose, and specially referred to the birth of their own Association. On the subject of architectural illustration, he said that the City of Dublin literally teemed with architectural work worthy of being recorded by illustration. It was proposed to form a society, the subscriptions to which might be devoted to procuring sketches, measurements, and photographs, supplementing those already published, and then eventually to publish a series of high-class illustrations of Irish architectural work. The speaker then went on to enumerate the many magnificent specimens of architecture in Dublin, particularly those of the XVIIIth century. Eighteenth century Dublin was admirably dealt with in Mr. Fitzpatrick's book, "Social Life in Eighteenth Century Dublin." The society of which he spoke should be closely identified with the architects of Dublin, and therefore he urged the Association to take a prominent part in calling it into existence. A State grant might possibly be claimed by a society undertaking so important and really national a work. He was profoundly convinced that if they wished to regain and preserve a national manner and method in architecture, as distinct from the impossible ideal of a new invention, their hope was to take up the threads of real art where they were dropped in Ireland, and see what would come of a natural process of development. The first step in that direction was the study of the work which lay nearest their hands, produced by generations whose ideals approximated more nearly to those of their own times. Referring to the subject of the revival of Irish industries, the speaker said that it had been suggested that he should propose a resolution pledging the members of the Association to use none but Irish materials wherever possible in their works. He need hardly say that if practicable or useful he would gladly propose such a resolution, but he had no desire to dictate to his professional brethren or fellow-pupils who were, he believed, keenly alive to the necessity of supporting Irish industries. A resolution such as was indicated would, he was afraid, savour of impertinence on his part. It was hardly necessary at that time of day to preach the lesson of home industries. They had admirable material to their hand. It was the bounden duty of Irish architects to do their part in any movement for the material betterment of the country by supporting native industries and materials wherever they could; but extravagant language such as that which they had recently heard about the use of concrete would only do more harm than good. They should set their faces determinedly against any attempts to give a political tinge to so excellent a movement, which only required thought to command the sympathy and aid of all Irishmen.—*Dublin Daily Express.*

Engineering Societies.

THE INSTITUTION OF CIVIL ENGINEERS.—The Council of the Institution of Civil Engineers have made the following awards for the year 1906-1907:—The Howard Quinquennial Prize to Mr. T. E. Vickers, C.B., in recognition of the part he has taken during his career in developing and improving the production of steel for important engineering purposes; Telford Gold Medals to Messrs. Dugald Clerk (London) and E. J. Way (Johannesburg); Watt Gold Medals to Messrs. J. T. Milton (London), A. W. Brightmore, D.Sc. (Egham), and C. W. Lloyd-Jones (Secunderabad); George Stephenson Gold Medals to Messrs. G. A. Hobson (London) and W. C. Copperthwaite (London); Telford Premiums to Messrs. C. F. Jenkin, B.A. (London), W. A. P. Tait, B.Sc. (Edinburgh), A. P. Trotter, B.A. (London), M. Kellow (Penrhyndeudraeth), H. J. S. Heather (Johannesburg), A. M. Robeson (Johannesburg), and J. W. Hitchin (Bristol); a Crampton Prize to Mr. R. F. Thorp (London); Manby Prizes to Messrs. S. A. Frech (London) and G. D. McGlashan (Blyth); the Miller Scholarship and the "James Forrest" Medal to Mr. A. C. Anderson (Wolverhampton); Miller Prizes to Messrs. R. A. Whitson (Basutoland), C. A. Ablett, B.Sc. (Addiscombe), E. H. Heathcote, M.A. (Henbury, near Macclesfield), G. B. G. Hull (Stockport), H. Stringer (Stoke-on-Trent), G. F. Walton (Edenfield, near Manchester), and A. T. Weston, M.Sc. (Woolwich); Bayliss Prizes, awarded on the results of the October and February examinations, 1906-1907, respectively, to Messrs. F. C. R. H. Boyd (Luxor, Upper Egypt) and D. J. Morris (Swansea).

THE SOCIETY OF ENGINEERS.—At the meeting on the 4th inst. a paper on "Bridle Roads in the West Indies" was read by Mr. H. C. Huggins. The author first referred to the old abandoned hillside road tracings in the Island of Tobago, B.W.I., as originally laid out by former French military engineers, and their conversion now into economical natural soil bridle roads to meet the present growing demand for the opening up and developing the country. Respective road sections were then discussed in the reforming of these traces, and cutting into the solid banks shown to be the most satisfactory and economical method to be eventually employed. The value of banking to form parapets, and the advantage of dispensing with side drains on this class of road were alluded to. Reference was made to the many streams which intercept these roads and the method of dealing with them; also the building of retaining walls for larger streams to avoid inundation, and the method of erecting them suitable for subsequent conversion into culverts was dealt with. The felling of forest trees was next referred to. The effects of over-felling and the advantages to be derived from the moderate use of the axe were considered. Suggested clearings for permanent bridle roads and those to be converted into cart roads in the near future were made. Attention was directed to river encroachments and the diversion of water courses by means of temporary groynes, and practical suggestions were made as to the relative positions of such structures to effect the required result. Bridle bridges were discussed, and the necessity of regulating their design in accordance with future development of the roads was insisted on. Finally, the author's method of utilising steel rails in the construction of bridle bridges was described in detail.

Competition.

PROPOSED PAVILION, WEYMOUTH.—The *Southern Times* understands that the authors of the accepted plans submitted under the *nom de plume* of "Expert" for the new pavilion which it is proposed to erect at Weymouth (not Bridport, as stated in our last issue) are by Messrs. Mangnall & Littlewoods, architects, Manchester.

BOOKS RECEIVED.

ENAMELLING. By Lewis F. Day. (B. T. Batsford. 7s. 6d.)

VASARI ON TECHNIQUE. Translated by Louisa S. Maclehose; with Introduction and Notes by Professor Baldwin Brown. (J. M. Dent & Co. 15s.)

THE MODERN PLUMBER AND SANITARY ENGINEER. Edited by G. Lister Sutcliffe. Divisional Volume IV. (The Gresham Publishing Company.)

Trade Catalogues.

"ARCHITECTS' JOINERY," by Mr. F. A. Fawkes (Chelmsford), issued as a 5s. publication by Messrs. Batsford, is rather misnamed, as it is for the most part Mr. Fawkes's joinery, who is the manufacturer and fixer of the wooden mantels and other objects illustrated. There are a few designs by the late Mr. Bentley, and one by another architect; otherwise no architectural designer's name is given. We may conclude therefore that the real meaning of the title is that it is joinery suited to the tastes of architects, and something better than the usual style of wood-work kept in stock. This praise for the most part it deserves; most of the designs are in good taste and some of them may be highly commended. Details of sections of mouldings and of enriched mouldings are added.

The Bell Range and Foundry Company send us three illustrated catalogues of their ranges, dog grates, and basket grates. The Bell range has a good point in the formation of the heating flue under the boiler with a grated bottom, so that any ashes or dust conveyed into the flue fall through into a receptacle provided for them, and the necessity for constant cleaning of the flue is avoided. The lifting fire bottom is fitted with a draught plate which rises with the bottom and forms a shield to the fire, making it a slow-combustion fire. An omission is that nothing is said as to a safety valve to the boiler; it may be intended but it is not described, and it is necessary to know whether there is one, and of what kind—a dead-weight valve is the only kind to be thoroughly trusted. The basket grate, with a fire-brick back projecting forward over the fire is a good grate, and many of the designs are good, especially the plainer ones; some of the others would be the better for the omission of details which are supposed to be ornamental, and the same may be said of the dog grates; though in general the designs are much less florid than we see in many grate catalogues.

We have received from the Electric and Ordnance Accessories Company, Ltd., of the Stellite Works, Birmingham, a catalogue of their "electric heaters." We are glad to notice that considerable attention has been paid to the artistic design of the heaters. As a rule, manufacturers pay far too little attention to the exterior designs of their heaters, and we believe that this has a good deal to do with the comparatively slight demand in this country for this kind of heating. In this catalogue over fifty different patterns of heaters are illustrated, and the designs are really artistic in character and most creditable to the firm. They are fitted with ruby illuminating lamps, so that a glance at the heater suffices to show whether it is working at $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, or full load. It is stated that care must be taken not to place an electric heater immediately under a ventilator or a window, "otherwise a considerable amount of the ascending hot air will be lost, and very great waste incurred." As a rule, however, the draught comes in by the window, and so the ascending hot air heats the incoming cold air. Hence, under a window is often the most suitable place for the heater. The company make their convectors on two systems. The "Rivers" system in which a large number of heating units working at a low temperature are employed, and the "Eclipse" system in which fewer units at a medium temperature are used. In both systems the air enters at the bottom of the heater, passes over and through the heating units, and issues from the top at a considerably higher temperature. Full data as to the costs of burning are given in all cases. All interested in electric heating would do well to get this catalogue.

Messrs. William Miller, Ltd., of Glasgow, have sent us a price list of their fire extincteurs. These are of the well-known acid and soda-water type. They consist of cylinders charged with a solution of sodium bicarbonate, and each containing a glass vessel filled with acid. Attached to the extincteur is a knocker. To bring the extincteur into action, the knocker is raised to the full extent and then brought smartly down. The acid vessel is thereby broken, and a large volume of gaseous carbon dioxide is formed by the action of the acid upon the sodium bicarbonate. The accumulation of carbon dioxide under pressure in the extincteur causes the sodium solution to be ejected with great force, and to rapidly extinguish any small fire upon which it may be directed. The company claim that they are the makers of the only extincteurs now ordered by His Majesty's Office of Works, and that fire insurance companies grant a discount of 10 per cent. from premiums upon premises provided with their extincteurs. The extincteurs are made in several forms and sizes.

Messrs. Thomas Faldo & Co. send us a booklet entitled "A Few Simple Facts About Asphalte," the objects of which is to present, briefly, some information concerning asphalt generally, and to state reasons why architects should specify the productions of the firm. Although sole concessionaires for Great Britain of the Seyssel Mine, in Haute Savoie, France, Messrs. Faldo & Co. point out that they manufacture almost every kind of asphalt in their own works, and therefore have no inducement to push one particular kind simply because they do not make any other. The circular is concluded by a long list of public buildings, harbour works, reservoirs, industrial and commercial establishments, and other places where the firm have executed contracts.

Messrs. William Cubitt & Co. send us an illustrated catalogue of their show-cases, bookcases, stands, etc., executed for H.M. Government at the British and Natural History Museums. The fact that they have been selected to carry out work of this kind at the two great museums named would be in itself a proof that they were doing it well, even if the reputation of the firm were not so well known; but in the case of most of the illustrations there is not much to be said about them, except that they are photographs of cases in which we have no doubt the work is excellent, but which present no special features in design. There are two or three exceptions, as in the case of the stands in the Bronze Room, British Museum; in the Gold Ornament Room; and the oak table case in the King's Library; these are fine pieces of work, with a certain monumental character suited to their position and surroundings.

Messrs. G. Jackson & Sons send us a pamphlet of illustrations of chimneypieces made by them in wood and carton-pierre. These are enriched decorative designs of Classic type, and to a great extent based upon the style of the Adams. Most of them are in very good taste; some of them a little too florid in ornament for our liking. That the details are well modelled and executed we may safely assume, considering the high reputation of the firm in work of this class.

Correspondence.

MEANS OF ESCAPE FROM FIRE.

SIR,—On December 16 next, I am to read a paper at the Royal Institute of British Architects on "Means of Escape from Fire in Modern Factories and Warehouse Buildings, with reference to the London Building Acts Amendment Act," and I should be much obliged if any of your readers could give me, as soon as possible, short details of any case with which they have been concerned, either in favour of, or against the provisions of the Act referred to. I am desirous of making the paper as interesting as possible, particularly as the London County Council are about to apply to Parliament with a view to an Amendment of the London Building Act, 1894, as regards the cubic contents of buildings, which would have some relation to the subject of my paper.

WM. WOODWARD.

13, *Southampton-street,*
Strand, W.C.

The Student's Column.

MODERN METHODS OF USING GAS.—XVII.

Gas-heated Furnaces.

THE USES OF GAS FURNACES.—The adaptation of gas to furnace heating was a work which was for many years left almost solely to the late Mr. Thos. Fletcher, and the firm which he founded retains to this day its foremost position in the list of gas-furnace manufacturers. For many years it appeared as though the cost of gas would prohibit its use for large industrial furnaces, and would admit of its being used only for laboratory furnaces and other furnaces of small dimensions. Improvements in furnace construction, and in the methods of burning gas, have, however, been followed by a demand for furnaces of large capacity, and town gas is now often used for heating furnaces of considerable dimensions. Gas furnaces are very extensively used for melting metals and roasting ores, for melting or enamelling glass, for hardening cycle fittings and heating rivets, for annealing and case-hardening tools, for china painting, for jeweller's work, and for many laboratory purposes.

Draught Furnaces.—Draught furnaces are furnaces supplied with gas under ordinary pressure and used without a blast of compressed air. Air is drawn into the mixing tube of the furnace burner as in an ordinary Bunsen burner; but the hot combustion products escape into a flue which forms part of the furnace, and a strong up-draught is thereby created which causes more air to be drawn into the mixing tube and flame than would enter if no flue were used.

Blast Furnaces.—In blast furnaces the burner is provided with two supply pipes, one for gas under ordinary pressure, and the other for compressed air supplied from a foot-blower or some form of blower operated by mechanical power.

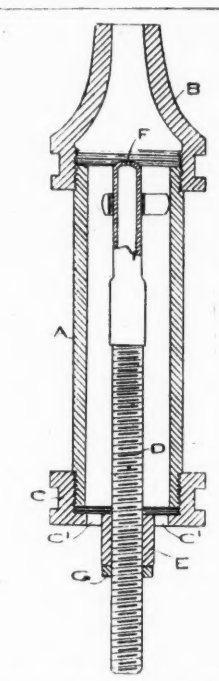


Fig. 34. Furnace Burner for High-pressure Gas.

High-pressure Gas Furnaces.—In these gas under high pressure is supplied to the burner, and air under atmospheric pressure is drawn into the mixing tube by the injecting action of the jet of compressed gas. The burner has, therefore, only one supply pipe. The result obtained is the same as that obtained with a furnace supplied with low-pressure gas and compressed air.

The burner which has been designed for use with high-pressure gas by Mr. Onslow, the gas engineer at the Royal Arsenal, Woolwich, is shown in Fig. 34. On the burner tube A is fitted the nozzle B. At the lower end of the burner tube is a cap C, in which are a number of holes C^1 which admit air. The gas tube D is screw-threaded at E. The gas tube is locked in position, after adjustment,

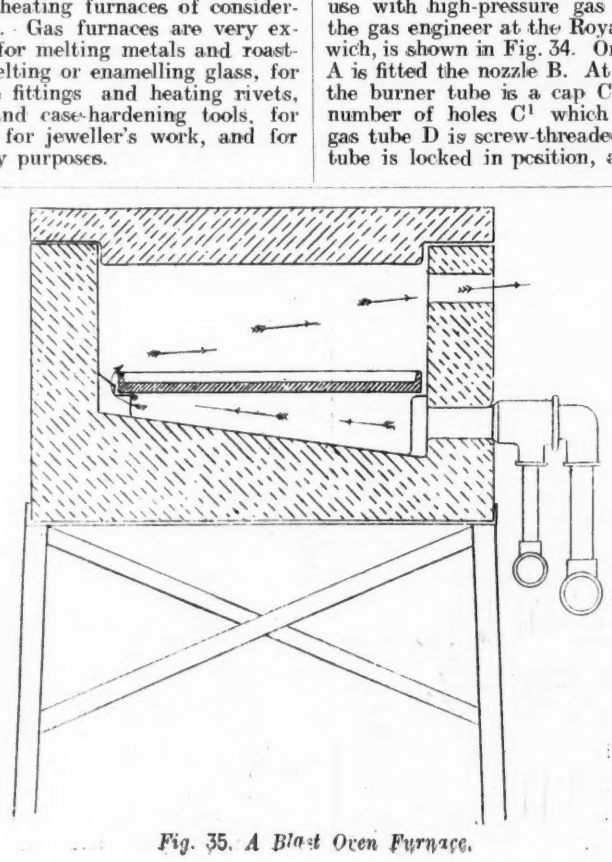


Fig. 35. A Blast Oven Furnace.

by the lock-nut G. The gas escapes from the gas tube at F into the nozzle, and draws in air through the holes C[1].

Using this burner with gas of about 14 candle-power, supplied under a pressure of nearly 100 in. of water, Mr. Onslow has found it very satisfactory for heating metal rapidly and economically.

In a paper read at the Engineering Conference in London, 1907, Mr. W. H. Y. Webber, when referring to the subject of heating by high-pressure gas, said:—"It is sometimes easier and cheaper to take the heat to the work than the metal to the furnace. Parts of a massive crank-shaft can be annealed, tempered, or case-hardened by simply building a fire-brick casing round the piece and leading the high-pressure gas to it. Pieces of regular size can have portable fireclay hoods fitted for them, and be tempered or annealed where they lie. Steel castings 3 ft. long and 12 in. diameter are thus treated by flexible hose-fed burners, 100 yds. distant from the pressure raiser. The saving in labour and time by this method far outweighs the cost of the gas."

Oxidation by Blast Flame.—In furnaces, such as reverberatory furnaces, in which a blast flame is allowed to come in contact with the metal to be heated, the oxygen in the blast is apt to oxidise the heated metal. In rivet heating, for example, it has been found that a scale of iron oxide is formed upon the rivets when the flame plays upon them. Steel oxidises rapidly when heated directly by a blast flame, and this prohibits its use in many cases where the flame would otherwise be useful. In some cases the sulphur in the combustion products also exerts a prejudicial influence upon the metal. In the blast-oven furnace (Fig. 35) which has been designed by Fletcher, Russell, & Co. for rivet heating, it will be seen that the flame does not come in contact with the rivets, and in this furnace less scale is formed upon the rivets than in a reverberatory furnace. On the other hand, the rivets are heated less rapidly, and the quantity of gas required to heat the rivets is larger. It would be possible to heat the rivets in a muffle furnace to prevent scale forming upon them, but the cost of the gas required for this mode of heating would be prohibitive. When any solid substance is interposed between the flame and the article to be heated a large proportion of the heat is lost.

Muffle Furnaces.—In a muffle furnace the article to be heated is placed in a receptacle or chamber called a "muffle." The muffle shields the article from contact with the flame. If the article is not liable to injury by contact with air or the products of combustion, a muffle having holes or slits in its walls may be used. The muffle may be made of fireclay, iron, plumbago, platinum, or a refractory composition. Fireclay muffles are largely used, but are easily fractured; platinum muffles are most useful, but as platinum is more costly than gold, platinum muffles can be used only for small and important work. Plumbago is a form of carbon and can be used only for work of certain kinds, for red-hot carbon reduces some metallic oxides to metal. Fig. 36 represents a simple form of draught muffle furnace made

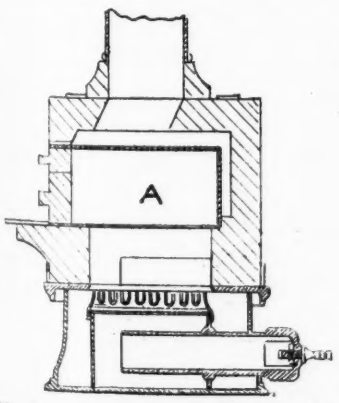


Fig. 36. A Muffle Furnace with Draught Burner.

by Fletcher, Russell, & Co. for small work, the muffle being shown at A.

According to Fletcher the gas consumption for every 10 sq. in. of working floor, when a fireclay muffle is used, is as follows:—

Heat of Muffle.	Cubic Feet per Hour.
Clear red, for hardening steel cutters ...	8
Yellow, for silver assays	10
Bright yellow, for gold assays	11
Yellowish white, for china enamels	14

Recent Improvements in Furnaces.—But since the foregoing figures were published some notable improvements have been made in furnace construction. In the "Economical" draught muffle furnace recently introduced by Fletcher, Russell, & Co., it is claimed that a temperature of 1,000 deg. Fahr. can be obtained in ten minutes with a gas consumption of 4½ cubic ft., the rate of consumption being less than 30 cubic ft. per hour. In the course of an hour the temperature rises to 1,850 deg. Fahr., and within two hours the maximum temperature of 2,000 deg. Fahr. is attained. This furnace is used without any blast, and 2,000 deg. Fahr. is practically the highest temperature which can be obtained with coal-gas under low pressure without the aid of some form of blower to supply compressed air.

Drawing Air Through a Muffle.—For some work it is necessary to pass a current of air over the contents of the muffle, and at the

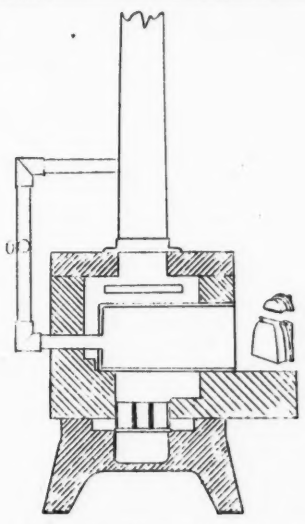


Fig. 37. Muffle Supplied with Air Free from Combustion Products.

same time to protect the contents from contact with the products of combustion. In such a case one of the muffle furnaces made by John J. Griffin & Sons, Ltd., of the form shown in Fig. 37, may be used. The back of the muffle is connected by a tube to the flue, and within the tube is a damper by which the current of air passing through the muffle can be regulated. With this furnace a temperature sufficiently high to melt cast-iron can be attained with gas burning at a rate of 75 cubic ft. per hour.

Utilisation of Waste Heat.—If two furnaces are connected together, the heat which escapes from one may be used for heating the other. Both open and muffle furnaces are now made in the "double" form. A double draught muffle furnace made by Fletcher, Russell, & Co. is shown in Fig. 38. When the temperature of the first furnace is maintained at 2,000 deg. Fahr., the temperature of the second furnace will be maintained at 1,700 deg. Fahr. solely by the waste heat from the first furnace. Similarly, in the double blast furnace used for metal melting; when the metal in the first furnace has been melted the gas supply to the first furnace is shut off; and the second furnace, which has been heated to a high temperature by the waste heat from the first, is brought into action. The waste heat from the second furnace goes into the first, and by using the two furnaces alternately a great economy is effected.

Another method of utilising the waste heat has been adopted by the Alldays & Onions Pneumatic Engineering Company. In one form of muffle furnace manufactured by this firm the compressed air from the blower is led to a jacket which surounds the furnace flue. By its passage through this jacket the air becomes highly heated before it passes forward to the flame.

The Bates & Peard Method of Annealing.—Within the last five years the form of annealing furnace patented in 1901 by Bates & Peard has been adopted by many manufacturers for annealing metals other than iron. In this furnace non-ferrous metals

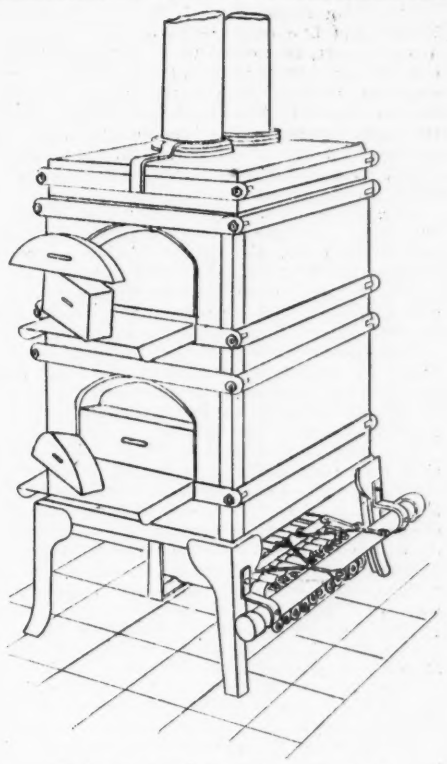


Fig. 38. A Double Muffle Furnace.

may be annealed and yet remain free from scale or discolouration. The annealing chamber is an air-tight tube or retort, and each end of the retort descends and dips into water contained in a tank. Air is by this means excluded from the retort. If desired, a slow stream of any suitable non-oxidising gas may be passed through the retort while the annealing is being accomplished, special inlet and outlet pipes for the gas being provided. A conveyor consisting of an endless chain belt passes through the retort and the two water tanks. The metal to be annealed is placed upon the conveyor. This draws it first through the water seal at the inlet to the retort, then through the retort, and finally through the water seal at the outlet from the retort. After it has left the water the metal speedily becomes dry owing to its heated condition. In small furnaces the conveyor is operated by hand. The retort is commonly heated by burners supplied with town gas and compressed air, but any other method of heating may be used. These furnaces are in use at the Royal Mint, London, for annealing silver and bronze fillets from which coins are stamped, and for annealing coin blanks before the impressions are struck upon them. The coins are packed in perforated iron boxes before being passed into the retort. At the Royal Arsenal, Woolwich, they are used for annealing cartridge-cases. The furnaces are also used for annealing coils of copper and brass wire. In a single-type coin furnace the heated portion of the retort is 6 ft. in length, and the average speed of the conveyor is 12 ft. per hour. This allows thirty minutes for each lot of metal to be annealed. About 2½ cwt. of metal per hour can be annealed. In a double-type furnace 5 cwt. per hour can be annealed. Bates & Peard have designed another annealing furnace for use where liquid seals are not permissible. The retort has inlet and outlet shoots closed by falling plate valves, and has a stream of non-oxidising gas passed through it.

Furnaces Fed with Oxygen.—For rapidly melting small quantities of metal, a furnace fed with a fine jet of oxygen from a cylinder containing compressed oxygen is sometimes used. The oxygen mixes with air, and then with the coal-gas before passing to the point of ignition. Very high temperatures can be obtained in this way, but oxygen is too expensive for use on a large scale.

LOAD TESTS OF "ARMOCRETE" FLOORS.

ON Wednesday last week two sample floors, built on the system of the Armoured Tubular Flooring Company, were tested at the yard of the firm at Leighton-road, Kentish Town, in the presence of a company of architects, engineers, and others.

The floors were of identical construction and dimensions. The overall length in each case was 21 ft. 1 in., and the clear span 19 ft. 9 in., the width being about 3 ft. 7 in. The floors were built up of five reinforced concrete ribs spaced 10½ in. apart, connected by 8-in. tubes of cinder concrete, and finished by a top layer of ordinary concrete, making up the thickness of 10¼ in. For resistance to tensile stresses due to bending moments the lower part of each rib was reinforced by a special corrugated bar, 2 in. high by $\frac{1}{10}$ in. thick, with the effective cross-sectional area of 0·387 sq. in.

The two floors were placed tandem fashion on the flanges of three short steel girders built into low brick piers, the girders being supported between these by a connecting brick wall. At one end the supports were 2 ft. 3 in. high, at the other end 3 ft. high, and the middle support carrying one end of each floor was about 2 ft. 6 in. high.

In all the tests the loading consisted of common bricks stacked on edge without any bond, so as to reduce arching as much as possible, the only liability to such action being due to friction of the bricks one against another.

Four tests were conducted, during which deflection was measured on rods, and checked by measurements taken between a point at the middle of the side of each beam and a piece of wire stretched from support to support. Records of deflection were not taken at regular intervals, and the loads were estimated from time to time by the rough-and-ready process of counting the rows of bricks, and allowing for the average weight of the men who happened to be on the top.

The following notes give the principal results observed in the course of the tests :—

Test No. 1.—Floor A. Age thirty days; designed for the uniformly-distributed working load of 1 cwt. per square foot.

The floor was loaded with five courses of brick laid on edge, representing the weight of about 1·33 cwt. per square foot; the maximum deflection at one edge of the span was ¼ in. It should be remarked that as the brick loading only extended up to the edges of the floor the weight on each of the three inner reinforced webs was double that supported by each outer web. Consequently, along the centre line of the floor the load would naturally be more than 1·33 cwt. per square foot and the deflection more than ¼ in., but no provision was made for measurement save at one edge, and it was impossible to observe any difference by the unaided eye.

Almost immediately after removal of the loading the floor returned to its original form, thus denoting its perfect elasticity under the load stated.

Test No. 2.—Floor B. Age twenty-six days; designed for the uniformly-distributed working load of 1 cwt. per square foot.

The floor was loaded with six courses of brick laid on edge representing the weight of about 1·6 cwt. per square foot; the maximum deflection at one edge of the span was ⅜ in. As the manner of loading and the method of measuring deflection were the same as in Test No. 1, the load on the three inner ribs was somewhat greater than 1·6 cwt. per square foot, but nothing definite can be said concerning the actual deflection along the centre line of the floor save that it was not perceptibly greater than at the outer edge.

Shortly after removal of the loading the floor returned to its original form, showing the absence of permanent deflection.

Test No. 3.—Floor A. The object of this test was to ascertain the ultimate resistance of the floor. Accordingly, the bricks on Floor B were transferred to Floor A, and the men proceeded to lay other courses of brick on the top.

When the height of the loading had reached rom ten to twelve courses on different parts of the area, and the deflection was quite normal, the floor broke down at one end without a moment's warning, the average load, including the weight of the men, probably being somewhere about 3¼ cwt. per square foot. The collapse was so sudden that only those who were standing close to the point of failure were able to see what actually happened. From personal observation we are merely able to state that after the occurrence the outer support was lying overturned with the inner face uppermost, that the floor was fractured seriously at a place about 5 ft. from the same support and less seriously at several other places, and that the outer tension bands were not ruptured. No examination at the underside of the floor was possible.

If the floor had been securely supported the inference to be drawn would be that the failure must be attributed to the inadequate resistance of the construction. But the supporting brickwork was neither particularly firm nor well seasoned, especially that at the outer end, and a not unreasonable theory is that the support in question was pushed outwards by the action of the floor when deflected under load. This view is confirmed by the evidence of an engineer on the staff of the Great Eastern Railway, who was standing near the support and distinctly saw the pier commence to move outwards before the floor collapsed. Accepting this explanation, the cracks would naturally result from the shock occasioned when the underside of the floor came in contact with the ground.

Test No. 4.—Floor B. With the object of clearing up any doubt as to the ultimate strength of their construction the patentees decided to test to destruction the other floor, leaving in position the broken span with its load of bricks to act as an abutment to the middle support. They also applied a strut between the outer support, and a large tree a few feet from it.

The work of loading was conducted by a gang of fifteen men, and as the courses of brick were successively added the deflection increased gradually and quite regularly until under the load of about 3 cwt. per square foot it was ⅞ in. at the middle of the outer edge. When the load of 3½ cwt. per square foot was reached the deflection was measured at $1\frac{7}{16}$ in., and fears then began to be entertained lest the supply of bricks should be insufficient for a test to destruction.

In less than two minutes, however, the span suddenly collapsed exactly as happened in the case of Floor A, except that the support next to the chief plane of rupture was not overthrown. This support was the middle one of the series, and, being heaped up with bricks on both sides, could not be examined very closely. Moreover, by this time night had fallen, and the only available means of illumination consisted of two naphtha lamps. The piers of the support certainly gave no indication of movement that could be detected by the eye. The other support had been pulled inwards slightly by the downward cant of the floor before collapse. As in the case of Floor A, the most important fracture in the floor was at the distance of about 5 ft. from one support.

In view of the facts it is difficult to dismiss altogether the feeling that in each case the real cause of failure may have been inadequate strength of the floor rather than insecurity of the supports. Against such a conclusion it can reasonably be urged that if the construction failed by reason of excessive compression in the concrete, or excessive tension in the reinforcement, the failure would have taken place at the middle and not at one end of each floor, and that if it failed by the effects of shear (against which there is no reinforcement whatever in this system) failure should have occurred at both ends instead of at only one end of each floor.

Bearing in mind all the circumstances, we think the benefit of the doubt should be given theoretically to the patentees, but from the practical standpoint the only conclusion we are able to draw is that under the superload of 1½ cwt. per square foot, or 50 per cent. more than the calculated working load, the rigidity and elasticity of the construction appeared quite satisfactory, and that under the actual conditions the ultimate strength of the construction was about 3½ cwt. per square foot, giving 3·5 as the factor of safety.

We do not think the patentees have done themselves justice by these tests. If they had been wise they would have entrusted the conduct of affairs to an experienced independent engineer, whose first care would have been to provide for absolutely secure supports, and by whom approved methods would have been adopted for loading the floors in such a manner as to avoid all possibility of arching effect, for taking exact weights of the loading at regular intervals, and for measuring the deflection of the floors and the settlement of the supports at corresponding intervals.

Scientific construction is becoming more and more a feature of architectural practice, and if tests of floors and other structural details are to be of any use to practical men they must be conducted on scientific lines which leave no loophole for ambiguity or misinterpretation.

WESTMINSTER CITY COUNCIL.

AT the fortnightly meeting of this Council on Thursday last week the following amongst other matters were dealt with :—

Crown Court Improvement.—The Improvements Committee recommended that an area of land measuring 1,700 ft. super., purchased by the Council in 1903 from the Duke of Bedford for 1,200*l.*, be added to Drury-lane-gardens, and that a brick wall with stone capping and iron gates, estimated to cost 380*l.* be erected to enclose the land.—After some discussion the recommendation was agreed to.

Wood Paving.—It was decided to pave the Eccleston Bridge approach with wood blocks, the work to be carried out by the Improved Wood Paving Company under the terms of their contract of June 27, 1907.

Strand Improvement.—A letter had been received from the London County Council stating that in connexion with the proposed erection on a portion of the Strand-Aldwych site of a new building for the Government of Victoria it had been suggested by the Agent-General of Victoria that the name of the eastern spur street upon which the new buildings will abut should be Melbourne-place, the reason given being that Lord Melbourne was Prime Minister of the Mother Country at the time when "we were granted our constitution by Queen Victoria, and the name suggested would indicate what really does exist, a loyal connexion between the Mother Country and the Colonies."—It was agreed to concur with the suggestion.

COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held at the Guildhall on Thursday last week, the Lord Mayor presiding.

Ventilation of the Sessions House.—Mr. Hepburn called attention to a remark recently made by Mr. Marshall Hall, K.C., to the effect that the ventilation of the new Sessions House was the "biggest scientific failure that he had ever come across." Mr. Domoney, in reply, denied that the ventilation was as bad as had been stated. He had never experienced the inconveniences which had been alleged when at the courts.

Hornchurch Wharf.—The Streets Committee, reporting on a reference relative to damage to the wharf at Hornchurch, recommended that the Yorkshire Hennebique Contracting Company be formally called upon to put the wharf into a proper state of repair, failing which the committee be instructed to have the necessary repairs forthwith carried out and the Company charged with the cost.—The Court agreed.

Reparation of Sewers.—The same Committee submitted for acceptance the tender of Messrs. Mowlem & Co., at schedule prices, for the supply of materials and labour for the reparation of sewers for a period of three years as from Christmas next; and also the tender of Messrs. Killingback & Co., for the reconstruction of the sewer beneath Barbican, for the sum of 2,557*l.*, recommending that the resolution accepting a tender of Messrs. Rowlingsons & Co. be rescinded. —The Court approved.

Franco-British Exhibition.—The Town Clerk read a letter from the Executive Committee of the Franco-British Exhibition of Science, Arts, and Industries (London, 1908), stating that the Municipal Council of Paris have decided to participate in the exhibition by erecting a special pavilion for the city of Paris on a site within the Court of Progress of the exhibition, and asking if the Corporation would be willing to erect a pavilion in the same court. The matter was referred to the Coal and Corn and Finance Committee.

Mansion House Repairs.—The General Purposes Committee submitted the following estimate for works and furniture at the Mansion House for the ensuing year, viz. : Works generally, 1,025*l.*; glass and iron lean-to roof, from the north-west angle of the Mansion House to the portico in Wallbrook, 250*l.*; regilding columns and repainting bases in Egyptian Hall, 150*l.*: Axminster carpet for ditto, 365*l.*—The Court approved.

PUBLIC BATHS, BALSALL HEATH, BIRMINGHAM.

THE new baths for the Balsall Heath district, in Moseley-road, were opened on the 30th ult. The buildings were designed by Messrs. W. Hale & Son, architects, Birmingham, and the contract (exclusive of the engineering works) has been carried out by Messrs. W. & J. Webb, also of Birmingham. The various engineering works, which include the sinking of a well and bore-hole on the site for the water supply, the erection of the necessary steam boilers, engine and pumping machinery, cold-water storage tank, steam heaters, hot-water reserve tanks, together with the various hot and cold water service pipes, establishment laundry and steam warming apparatus, etc., have been designed by and carried out under the direction of Mr. Job Cox, the Superintendent Engineer of the Birmingham Baths and Parks Department. The front elevation has been designed to harmonise in general grouping with the free library buildings. Dull red sand bricks are used for the plain wall surfaces, and picked Oldbury bricks for the other outside work, and terra-cotta of a deep buff colour has been used in the general dressings and enrichments. The front elevation has a central two-story block, flanked on either side by an octagonal ventilating turret. These turrets ventilate all the men and women's private baths. The central block provides accommodation, on the ground floor for the women's private bath department, and on the first floor a committee-room has been provided for the occasional use of swimming clubs and for other purposes. There are three separate entrances to the buildings from the Moseley-road, and all converge on a single ticket office. The roofs over the swimming baths and the private bath departments are supported on cast-iron principals, semicircular or elliptical in form, and have lantern roofs with

vertical lights only. The whole of the visible internal joinery is of pitch-pine, oiled and varnished, with the exception of the seats, clothes-rails, and outer vestibulé doors, which are of oak. The floors throughout the several bath-rooms, dressing-rooms, corridors, and promenades, as also the stepped floor of gallery, have been laid with marble terrazzo paving having a special foot pace of ribbed adamantine tiles 2 ft. 3 in. wide laid round the promenade of each swimming bath, next to the coping stone of the pond, in order to prevent bathers slipping. The ventilation of the two swimming baths is effected by regulated fresh-air flue inlets and ceiling gratings, the latter communicating with valve-regulated extraction flues in the roof. The water area of the first-class swimming bath measures 81 ft. in length and 32 ft. in width. The walls and floor of the bath are cased with white glazed brick level with a coping or kerb of dressed York stone 18 in. wide. Lavatories and other conveniences have also been provided at each end of the bath, and a large room for swimming club stores that will be used occasionally for dressing-room purposes at swimming entertainments, etc. A spectators' gallery has been provided over the dressing-rooms along both sides of the bath, with an entrance-lobby, forming a crush-room leading off the main staircase which communicates directly with the hall and main entrance corridor on the ground floor. The second-class swimming bath measures 86 ft. 6 in. in length and 49 ft. in width between the walls. The walls and floor of the bath have been cased with white glazed bricks. There are sixteen first-class and sixteen second-class private hot and cold water baths for men; each bath-room measures 7 ft. by 6 ft. 6 in., and is provided with one white enamelled porcelain bath encased with Sicilian marble-tops, risers, and skirtings; each bath is fitted with an improved combined hot and cold water supply valve of the "Birmingham baths special pattern," together with the necessary waste valve and shower-bath fittings complete. Electric call bells are also fitted to each bath-room, and an electric light to each. The private bath department for women consists of six first-class and eight second-class private hot and cold water baths for women, with fittings much the same as in the men's baths. The boiler-house, engine-house, engineer's workshop and stores have been placed at the rear. Two steam boilers of the "Lancashire" type have been erected for the supply of steam to the various departments, also for driving the pumping machinery, etc. A 14-n.h.p. horizontal non-condensing engine has been erected for driving one set of treble deep well lifting pumps capable of raising 10,000 gallons of water per hour. These pumps are fixed at a depth of 170 ft. below the engine-house floor level, and are direct driven from the engine, with suitable gear-work and a three-throw crank shaft with connecting-rods complete. A cast-iron cylindrical well 7 ft. 9 in. external diameter has been sunk on the site to a depth of 175 ft. below the engine-house floor level, and below that a 12-in. bore-hole has been sunk to a further depth of 300 ft., and continued 8 in. diameter to a further depth of 252 ft. 6 in., thus making a total depth of 727 ft. 6 in. for the well and bore-hole, from which from 10,000 to 12,000 gallons of water per hour can be obtained. The several departments are warmed by low-pressure steam pipes and radiators placed in various positions throughout the buildings, and fresh-air flues have been constructed under the floor of the gallery on either side of the first-class swimming bath, with inlet gratings in the risers of the steps down each gangway. Vertical fresh-air flues have also been constructed in the external walls where possible, and for the purpose of extracting the vitiated air and vapour from the building large extraction flues have been constructed in the apex of the roof over both swimming baths and also over the private baths, and these flues are connected up to the vertical flues formed in the square portion of the chimney-stack, from which it is discharged into the atmosphere at a height of about 20 ft. above the roof of the buildings.

General Building News.

NEW CHURCH, ABERBEEG.—A new church is being built in the parish of Llanhilleth. The building is planned with centre nave, lighted by clearstory windows, north and south transepts and aisles, with chancel organ-chambers, and vestries. The external dressings and tracery are to be of Doulting stone and the walling in local stone. Internally the dressed work will be of Bath stone to windows and arches, with red Alveley stone shafts to nave arches. The work is being carried out by Mr. Ernest T. Bevan, builder, Penarth, at a cost of about 4,600*l.*, from the designs and under the superintendence of Mr. E. A. Johnson, architect, of Abergavenny and Merthyr.

NEW CHURCH, WHITEHEAD, CO. ANTRIM.—A new church is being erected by the members of the Church of Ireland at Whitehead. The building has been designed to accommodate about 400 people. Mr. James Kidd, Antrim-road, Belfast, is the builder and contractor, Mr. Thomas Blayney, Middlepath-street, Belfast, supplying the cut stone work. Mr. W. D. Tiegatt, C.E., has prepared the plans.

CHURCH ENLARGEMENT, STRATFORD.—St. Aidan's Church at Stratford is being enlarged by the erection of a chancel. The work is being carried out by Mr. A. E. Symes, from the plans of Messrs. Banister Fletcher & Sons, architects.

NEW CHURCH, EDINBURGH.—The memorial-stone was recently laid of the new church which is being erected at East Fettes Avenue for St. Luke's congregation, Edinburgh. Mr. P. MacGregor Chalmers, Glasgow, is the architect of the work.

CHURCH ENLARGEMENT, NOTTINGHAM.—Plans have been prepared by Mr. C. Hodgson Fowler, F.S.A., for erecting a new south aisle to the chancel at St. Mary's, Nottingham.

COUNCIL SCHOOL, LITTLE BOWDEN.—A new elementary school has been erected at Little Bowden by the Education Committee of the Leicestershire County Council. The school has been built to accommodate 450 scholars, and contains nine classrooms for fifty children in each; three of the classrooms, in the centre of the building, are capable of being thrown into one large room, and the two classrooms at each end are also fitted with sliding partitions to form one room if required. The materials used are Woodville sandstock bricks, Weldon stone-dressings, and green Westmorland slates for the roof; internally the classrooms have green glazed brick dados, with the plaster above distempered cream colour. The floors are laid with deal wood blocks. Heating and ventilation are effected on the fresh hot-air system, and fresh air inlets are provided to augment the introduction of hot air, and foul air is extracted at the ceiling level and conveyed to a central brick tower. The architects were Messrs. Coales & Johnson, of Market Harborough, and the contractor was Mr. Thos. Hickman. The contract amounted to 4,760*l.*

THE LEYS SCHOOL, CAMBRIDGE.—A new building, comprising gymnasium and armoury, art school, masters' rooms, etc., has been built at this school. The building has been designed by the school architect, Mr. Robert Kirwin, and is of red brick and white stone, with tracery heads. The gymnasium is 62 ft. by 33 ft. 6 in., and running round three sides of it is a pitch-pine gallery. The work has been carried out by Messrs. Kerridge & Shaw, at a cost of 3,500*l.*

COUNCIL SCHOOLS, EPSOM.—New public elementary schools have been erected by the Surrey Education Committee in Hook-road, Epsom. The schools, the exterior of which is of red brick and rough-cast, with red tiled roof, are built in one story to accommodate 950 children—300 boys, 300 girls, and 350 infants. There is a main hall 70 ft. by 40 ft., infants' hall 50 ft. by 30 ft., and in addition there are six classrooms for each department. The total area of buildings and playgrounds is two acres, and the price paid for the land was 1,500*l.*, while the building contract was for 10,011*l.* The architects were Messrs. Jarvis & Richards, and the builders Messrs. Hawkins, of Westminster.

ELEMENTARY SCHOOL, NORTH SHIELDS.—A new elementary school is being built in Preston-avenue, North Shields. The contract has been let to Mr. E. R. Davison, of Blaydon, and Messrs. Marshall & Tweedy, of North Shields and Newcastle, are the architects. The schools, when completed, will provide 1,360 school places. The estimated total cost is 21,155*l.* 14s. 6d.

ELEMENTARY SCHOOLS, SLOUGH.—The contract for elementary schools, to be built in William-street, Slough, has been given to Mr. Henry Flint, of High Wycombe, and amounts to about 7,700*l.* The accommodation is for 600 children, 175 being in the infants' department. Lawrence's pressed red bricks are to be used in facings, with moulded bricks to the pediments, parapets, etc., with terra copings, and Monks Park stone-work to the entrance doorways and all window sills. The roofs are to be covered with Cornish green slates, and Boyle's ventilating system is to be used throughout, while the heating will be by hot water. Messrs. Lee & Farr, of Slough, are the architects.

UNITARIAN SCHOOL, MONEYREA, CO. DOWN.—A new Unitarian school is to be erected at Moneyrea. The building will contain a school-room 45 ft. long by 23 ft. wide, and will be divided by a Whiteley patent partition. There will also be a classroom and cloakroom for the boys and girls. The architects are Messrs. Hobart & Heron, Belfast, and the builder Mr. Alexander M'Roberts, Saintfield.

NEW SCHOOL, GLASGOW.—A new school has been built in London-road, Glasgow, at a cost of 20,000*l.* It has accommodation for 1,100 children, and is built of red freestone from Corrie Quarries, Arran. The building is planned on the balcony system, and round the balconies the class and other rooms are ranged, the central hall being 95 ft. by 35 ft., and entirely roof-lit. The floors and stairs are all fireproof. The building is steam-heated throughout, the heating and ventilation of each room being controlled by the individual teacher. The architect was Mr. Alex. T. Turnbull, of Messrs. A. Thomson & Turnbull, Glasgow; the measurers were Messrs. M. Campbell Duff & Son, and Mr. J. Montgomery was clerk of works.

SCHOOL OF COMMERCE, CARDIFF.—A new School of Commerce for Mr. T. A. Blogg is approaching completion in Grey Friars-road, Cardiff. The architect of the building is Mr. Ivor Jones, and the contractor Mr. George Paltridge.

HAMMERSMITH PUBLIC BATHS.—The new baths and washhouses which are being erected by the Hammersmith Borough Council are now nearing completion and will be opened shortly. The site of the baths has frontages to Lime-grove on the east and Scotts-road on the south. The plans were selected in competition, and that chosen was prepared by Mr. J. Ernest Franck. Exclusive of site the cost of the whole scheme will be about 50,000*l.* The building, commencing from Lime-grove, comprises double entrances to the hall through a corridor, and entrances to the women's first and second-class slipper and douche baths and the men's slipper and other baths. Adjoining is an entrance to the committee-room and to a club room, and the superintendent's quarters. The material used in the elevation to Lime-grove is Portland stone, the general facing being of red brick with rubbed rustications. The first-class swimming bath is 121 ft. long and 50 ft. wide, and special provision has been made with regard to acoustic properties, in view of the possibility of the bath being used for concerts, meetings, &c. On such occasions the sliding ceiling lights will be brought into use.

BUSINESS PREMISES, NEWCASTLE.—A new building comprising Messrs. Proctor's new business premises and warehouses, and several suites of offices, has been built on a site on the side of the Castle-hill, Newcastle. The work, including the various fittings, have been designed and carried out under the direction of Mr. W. H. Knowles, architect, of Newcastle, Mr. M. Dodd being the clerk of the works, and Mr. S. F. Davidson the general contractor. The lifts are by Messrs. Waygood & Co. The electric lighting has been carried out by the Sunderland Forge & Engineering Company.

BETHANY HOMES, CATERHAM.—On October 19, Lord Strathcona opened the seven cottages which have been built, at a total cost of 2,750*l.*, at Whyteleafe, in Caterham Valley, for aged persons upon the foundation, mainly, of Miss Isabel Faraday, as a home of rest in connexion with the Robert Browning Settlement in Walworth. Miss Faraday established the original "Michael Faraday" Home in East Dulwich six years ago, and was afterwards presented with a gift of a freehold site at Whyteleafe by Mr. John Newberry. In the course of the opening ceremony it was announced that five donations of 240*l.* apiece had been made to provide five more cottages, and Lord Strathcona gave a further 240*l.* Each of the cottages, planned and designed by Mr. Alexander Gordon, is intended to accommodate four or five inmates, who are required to have a small weekly income—in no case exceeding 11s.—to defray the cost of their food and clothing.

RESIDENCES, WESTBURY-ON-TRYM, BRISTOL.—On the Southfield Estate at Westbury-on-Trym, which is being opened up, about twenty residences have been erected, the rents ranging from 25*l.* to 65*l.* per annum. The development of the estate has been in the hands of Messrs. C. J. Hole & Son, of Bristol, who have had the co-operation of Mr. W. H. Watkins, Bristol, as architect, and of Mr. R. T. Virgo, as builder.

SUNDAY-SCHOOLS, WOLVERTON.—Work has just been begun on the erection of St. George's new Sunday-schools and church institute. The architects for the new building are Messrs. J. Oldrid Scott & Sons, of Westminster, and the contract has been let to Mr. Henry Martin, of Northampton.

POST-OFFICE EXTENSION, AYR.—Alterations and additions have just been made to the post-office buildings erected in Sandgate-street about thirteen years ago. The architect was Mr. W. T. Oldrieve, of the Office of Public Works, Edinburgh, and Mr. W. Scott, of the same office, acted as clerk of works. The contractors for the whole work were Messrs. W. Auld & Sons, Ayr. Including the purchase price of the ground acquired for the purposes of the extension the total cost has been about 5,000*l.*

FREE LIBRARY, BANGOR.—The Bangor free library, which has just been opened, has been erected at a cost of 3,000*l.*, exclusive of furniture. The architects for the building are Messrs. Dixon & Potter, of Manchester, and the contractors Messrs. Hughes & Stirling, of Liverpool.

BUSINESS EMPORIUM, LIVERPOOL.—A new building is to be erected in Elliot-street and Great Charlotte-street, Liverpool. The premises will form a block covering about three-quarters of an acre of ground, and having a frontage to Elliot-street of 105 ft., and to Great Charlotte-street of 275 ft. The building is to be a three-story one with a basement. The work is being carried out from the designs of Mr. W. Aubrey Thomas, architect, Liverpool.

BOARDING HOUSE FOR ARTISANS, NEWCASTLE.—The new building in Tower-street, Newcastle, which has been opened as a boarding-house for men, primarily of the artisan class, provides accommodation for about 500 men. The building has floors constructed of concrete and steel joists, with wood flooring. The staircases are of concrete, with iron balusters and handrail. The walls are plastered with Adamant and have cement dados, and all angles to windows and floors are rounded to facilitate cleaning. The whole of the premises are heated by low-pressure hot water, and in the lighting both gas and electric light are introduced. The building has been erected from the designs and under the superintendence of Messrs. Liddle & Browne, Prudential-buildings, Newcastle, the builders being Messrs. J. & G. Douglass, Newcastle. The whole of the engineering work, steam cookery apparatus, etc., has been executed by Messrs. Emley & Sons, Ltd., Newcastle.

ADDITIONS TO THE LONDON ORPHAN ASYLUM.—A new laboratory and science schools have been erected at the London Orphan Asylum, Watford. The work was carried out from the plan of Mr. Alan E. Munby.

LEICESTERSHIRE COUNTY ASYLUM.—The new county lunatic asylum, which has been erected at Narborough by the Leicestershire County Council, was recently opened. The plans were prepared by Messrs. Everard & Pick, and the whole scheme has involved an outlay of 261,000*l*. The general form of the asylum is so arranged as to admit the maximum amount of sun and air into all the principal rooms. Provision is made for separating the male and female patients respectively into six classes on the male side and eight classes on the female side. This permits of sick, infirm, recent, acute, epileptic, and chronic patients being treated in wards set apart for the special treatment of the various forms of insanity from which they may be suffering. With the exception of the charity blocks, no wards are arranged for a less number than thirty-six. The new buildings at present provide accommodation for 688 patients, and plans are sanctioned for a complete asylum accommodating 912 patients, exclusive of hospital block and any villas which may be erected for special purposes. Large airing courts form a feature of the scheme.

GYMNASIUM, ABERDEEN UNIVERSITY. — An addition has just been made in the form of a gymnasium to the equipment of Marischal College. The gymnasium, including hall for gymnastic training and dressing-rooms for ladies and gentlemen, occupies the building previously tenanted by the Agricultural Department on the back quadrangle level behind the Mitchell Tower. The gymnasium now occupies accommodation previously consisting of four rooms divided by stone walls, pillars and arches, carrying walls the whole height of the building. These had to be removed and steel beams inserted to carry the walls and floors above. The alterations to the buildings, the gymnastic apparatus, and fitting and dressing-rooms, &c., have been executed to designs by Messrs. Marshall Mackenzie & Son, Architects to the University. The contractors were: Swedish apparatus, Garvie & Sons, Aberdeen; movable apparatus, Spencer, Heath & George, Ltd., London; mason, John Morgan; carpenter, D. Macandrew & Co.; plasterers, Scott & Sellar; iron, Abernethy & Co.; painter, John Whyte; electric lighting, A. B. Robertson; plumber, Blaikie & Sons; and the execution of the work has been superintended by Mr. George Reid, clerk of works.

Stained Glass & Decoration.

CHURCH, PILTON, SOMERSET.—A memorial window has been placed in the south aisle of the parish church, Pilton. The subject is the Good Shepherd. The window was designed by Miss Margaret I. Chilton, and carried out by Margaret I. Chilton and Wilfred A. Chilton, of Bristol.

MEMORIAL REREDOS, NEWBURY.—A reredos has been placed in the Parish Church of St. Nicolas, Newbury, to the memory of the Rev. Edward Imber Gardiner. The reredos is of Caen stone, and was designed by Mr. J. N. Comper, architect, of West Norwood, and the work has been carried out by J. McCulloch, Ltd., under the supervision of their manager, Mr. W. D. Gough.

WINDOW, CHAPEL ROYAL, BRIGHTON.—A new memorial window has been inserted in the chapel, the work of Messrs. W. James & Co. The subject is the Crucifixion, and the window contains three figures—in the centre Christ on the Cross, and on either side the figures of the Virgin Mary and St. John kneeling. The church being a classical one, the ornamental work forming a frame to the subject is treated accordingly, and the general treatment of the work is designed to retain the full effect of brilliancy and colour in the glass, whilst at the same time to embody sufficient detail in the painting to obtain a sufficiently modelled effect.

Sanitary and Engineering News.

GRAVING DOCKS, SOUTH BANK, NEWCASTLE.—On the 22nd ult., Sir Hugh Bell laid a coping-stone of one of the new graving docks which the Smith's Dock Company are building at South Bank. The site of the new docks and shipyard has an area of a little over 16¼ acres, and a length of river frontage of 800 ft. No. 1 dock will be 550 ft. long, 67 ft. wide between the entrance walls, and 26 ft. deep upon the sill at high water of ordinary spring tides. No. 2 dock will be 450 ft. long, 61 ft. wide between entrance walls, and 26 ft. wide on the sill. The design allows of each dock being lengthened if thought desirable at any future time. The dock pumps will be capable of discharging the whole of the water in the larger of the two docks in about an hour and a half, and are being constructed by the Worthington Pump Company, of London and Newark. The new shipyard will allow of the simultaneous building of twelve to eighteen trawlers of the largest class, and will have a frontage of 800 ft. The docks contract, commencing on January 2 of this year, was undertaken by Sir John Aird & Co., and since then a second contract has been entered into between the same firm and Smith's Dock Company, for the filling and construction of the river end of the shipyard and for the wet dock and its timber wharf of over 400 ft. length. Mr. J. Mitchell Moncrieff, M.Inst.C.E., is responsible for the whole of the designs of the works. Mr. James Mitchell, A.M.Inst.C.E., is acting as resident engineer, while the contractors are represented by Mr. G. F. Palmer. The scheme is estimated to cost about a quarter of a million.

Foreign.

FRANCE.—The Municipal Council of Paris are considering the advisability of making an entrance charge for access to all their museums and art-galleries, every day in the week except Sundays and Thursdays. The receipts from such entrance charges would go to enlarge the fund for the purchase of works of art.——The works on the Metropolitan railway (line Nord-Sud) have necessitated the temporary removal of the monument to Gavarni in the Place St. Georges. It is to be re-erected on the same site.——A monument to the memory of those who fell in the war of 1870 has been erected at Corbeil. M. Paul Fournier is the sculptor.——At Alice-Sainte-Reine, near Semur, some well-preserved ancient sculptures have been found, consisting of a figure of Mercury and of a female figure bearing a cornucopia.——MM. Demaliny & Contavaz, architects, have been commissioned to carry out a group of schools at Allevard-les-Bains (Isère), at a cost of 100,000 francs.——Some unknown persons have seriously damaged the valuable sculpture of the Roman era in the garden of the Hôtel-de-Ville at Beaune.——M. Ferret, architect to the Department of l'Ain, has been commissioned to rebuild the tower of the church of Notre Dame at Bourg. The cost is estimated at 277,000 francs.——M. Gaillandre, architect, has been commissioned to carry out a new crematorium in the cemetery at Nice, with a columbarium, at a cost of 175,000 francs.——M. Wilhelm, engineer, of Gap, has drawn up a scheme for the barrage of the water of the Verdon at Gréoux, in order to increase the delivery of water to the Durance. The cost is estimated at 12 million francs.——Important works are to be undertaken at l'Ille-sur-Sorgues, under the direction of M. Carle, architect, for bringing an increased supply to the town. The cost is estimated at 240,000 francs.——The death is announced, at the age of eighty-six, of M. Emile Trélat, Director and founder of the Ecole Speciale d'Architecture; a former Deputy, and a Professor at the Conservatoire des Arts et Métiers. A pupil of Visconti, he collaborated with that distinguished architect in the completion of the Louvre and the Tuileries. During the war of 1870 he took an active part in the defence of Paris. He was "Officier" of the Legion of Honour, and author of several works on architecture, more particularly of a series of lectures given at the Trocadéro since the exhibition of 1878.——The death is also announced, at the age of eighty-nine, of M. Eugène Lacoste, designer to the Paris Opera, who for more than twenty years assisted in preparing the decoration of all the works mounted by the Académie Nationale de Musique.

GERMANY.—As a result of the competition for sketch suggestions for the improvement in the plan of the Zoological Gardens, Berlin, the following architects have been selected to enter a close competition for the final design:—Messrs. Jürgensen & Bachmann and Fröhlich, of Charlottenburg, Brurein and Möhring, of Berlin.——Dantzig, the protector and patron of art during the Middle Ages and Renaissance, which has already sacrificed so much of its beauty to modern requirements, is about to lose another of its peculiar charms. It is alleged that the quaint flights of steps leading up from the streets to the house doors interfere with the pedestrian traffic, and consequently it is proposed to make a clean sweep of them. The streets marked down for "improvement" happen to be the most picturesque ones in the town, dating from the XVIth and XVIIth centuries, the effect produced by the houses being largely due to the approach formed by these irregular and varied flights of steps, each designed to suit a particular house.——Professor Erich Kaiser, of Geissen, has just published the result of his researches into the cause of the disintegration of the masonry of Cologne Cathedral, especially of that in the buttresses and flying-buttresses of the nave and transepts. The decay cannot be traced to the composition of the stone itself, but is entirely caused by the carbonic and sulphuric acids emitted in the smoke of the surrounding railway-stations, factories, heating stations and steamboats. Since the cause of the decay manifestly cannot be removed, endless patching up will have to be resorted to, unless some protective solution can be discovered which will preserve the masonry. It seems strange that the cathedral authorities should not have given a trial to Colonel Szerelmey's protective wash, which has been used with success since 1859 in London, and since 1900 in Berlin, where hundreds of public buildings are coated with it.

ITALY.—Dr. Artur Hruschka recently delivered an interesting lecture to the members of the Austrian Railway Employés Club on the newest developments in electric train traffic in Switzerland and Italy. He quoted the Valtellina and Simplon lines as possessing the most perfect engines and arrangements suited to peculiar circumstances. The immense progress made in perfecting the engines may be readily appreciated by comparing the first locomotive used on the Valtellina with those now in use on the Simplon. The former had only one speed, 32 km. per hour, the latter, manufactured by Brown, Bovéri, & Co., have four speeds (17, 34, 51, and 68 km. per hour). The contract between the firm Brown, Bovéri, & Co. and the Swiss Railway Company contained, amongst others, the following hard condition:—Between Brieg and Iselle one engine shall be capable of drawing a passenger train of 300 tons weight at a rate of 68 km. per hour, and a goods train of 400 tons weight at a speed of 34 km. per hour. (*N.B.*—To overcome the resistance of the air in the tunnel 400 h.p. is required to attain a speed of 80 km. per hour, as against 95 h.p. for the same speed in the open.) Further, the firm supplied at their own expense all the plant, etc., necessary for working the electric railway, and undertook the management for one year, or possibly two. At the expiry of the time specified, even though the results may have proved entirely satisfactory, the Government has the option of refusing to take over the plant should it be deemed expedient to try another electric system. As an example of the advantage of electric over steam power on mountain railways the speaker quoted the Lötscher line, now in course of construction between Frutigen and Brieg. By adopting electric power a shorter route could be traversed, with a rise of 35 per cent., as against the 15 per cent. at first contemplated, and thereby a saving has been effected of 25 million francs. Also the tunnel has been reduced in length from 21½ to 13½ km. The speaker further mentioned that in December, 1906, the Italian Government voted 70 million lire for fitting out thirteen separate lengths of line with electric plant. These lines chiefly cross watersheds, and have steep rises and long tunnels. The lengths measure in all 330 km., and while 38 million lire will be spent on fixed plant, 32 millions will be required for the engines.

SWITZERLAND.—On the 21st ult. the annual meeting of the engineers who took part in the building of the St. Gothard route from 1872-1882 was held in Lucerne and Lugano. As this year was the twenty-fifth anniversary of the opening of this railway no more suitable spot could have been selected than the scene of the engineers' triumphs. The railway company gave the members free passes over their line till the end of the month, the Lugano Steamship Company placed a boat at their disposal, and the town of Lugano entertained the visitors, numbering 100, in the Grotto of Caprino.

RUSSIA.—The Imperial Russian Technical Institute announces an International Exhibition of modern lighting and heating apparatus to be held in December in St. Petersburg. At the same time a Congress will be held of craftsmen working at these subjects. Details to be obtained from the Committee of the said exhibition, Panteleimonskaja, 2, St. Petersburg.

SINGAPORE.—Sir John Jackson, Ltd., are contractors for the harbour works which the Admiralty are carrying out, to include the making of a quay and harbour at Telok Ayet: it is contemplated also to construct a wet dock at Tanjong Pagar.

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. W. J. Morley & Son, architects, of Bradford and London, have taken into partnership Mr. Eric Morley, and their practice will be carried on in future under the style of "W. J. Morley & Sons."——Messrs. F. Webster & Son, builders and contractors, have removed from 48, Fenwick-road, Peckham Rye, to Grove Vale Works, East Dulwich, S.E.

TWO VILLAS, REGENT'S PARK.—The late Lord Aldenham's executors will offer for sale their interest in St. Dunstan's Villa, at the north-west corner of the Outer Circle, with the grounds extending over 9 acres, of which Lord Aldenham obtained a renewed lease for twenty-four and a half years, from H.M. Commissioners of Woods and Forests, on April 5, 1900, at a ground rent of 256*l.* 16s. 7d. per annum. The house was built by D. Burton, 1832-7, for the Marquis of Hertford, who there set up the once highly popular bracket-clock, bells, and two figures for striking the hours, with their arch and pediment, which belonged to the Church of St. Dunstan-in-the-West, Fleet-street, until its demolition in 1831. The clock, by Thomas Harrys, was fixed up in 1671, and can now be seen, partly screened by the foliage, from the park. A drawing of it accompanies our article, "Architectural Treatment of Clock Faces," of February 11, 1899; on April 25, 1885, we published a reproduction of West & Toms's view (1737) of the church, showing the clock, booksellers' shops, signs, etc. Burton was the architect also of Grove House, on the opposite side of the road, of which the lease was sold for 5,500*l.* some days ago. The finely-wooded grounds cover nearly 4¾ acres; the lease consists of a term of fourteen years unexpired, at a ground rent of 93*l.* 10s.

THE PLUMBERS' COMPANY.—A number of Master and Operative Plumbers attended for examination at King's College, London, on the 2nd inst. The candidates were from all parts of London, as well as from Windsor, Egham, Gravesend, Epsom, Sawbridgeworth, and South-end-on-Sea. The examination was for the purpose of registration under the regulations of the National Registration of Plumbers. The practical part of the examination consisted of various tests in lead bossing and joint wiping, as required for good-class of sanitary plumbing work and water services, and questions were also set to test the candidates' knowledge of the various materials used in plumbers' work, external and internal construction, and general sanitary arrangements of domestic dwellings. The examiners appointed to conduct the examination were: Messrs. C. Rogerson and C. Thomerson, master plumbers, and Messrs. F. Randall and F. R. Wyatt, operative plumbers.

ST. MARY'S CHURCH, HAMPSTEAD.—A new sanctuary has just been opened in St. Mary's Roman Catholic Church, Holly-place, on the slope of Holly Mount. The church was built in 1816 by Abbé Morel, who had found refuge in England at the time of the French Revolution, and established a mission at Hampstead, where he died in 1852. The church will shortly be enlarged. In the Royal Academy exhibition last summer was a water-colour drawing of Messrs. Collinson & Cock's designs for the interior, treated after the Classic style, having wooden columns, pilasters, and panelling up to the springing of the roof, with a transverse stone arch over the columns and transverse arched soffits above the pilasters. The designs for the rebuilding of the orphanage, 1897, were made by Mr. G. Sherrin.

INVERLIVER ESTATE, ARGYLLSHIRE.—The purchase is announced of the estate of Inverliver, about 13,000 acres in extent, for purposes of a State school of forestry under the management of His Majesty's Office of Woods and Forests.

RICHARD HOOKER MEMORIAL.—A statue, executed in white marble by Mr. Alfred Drury, A.R.A., has been erected in Exeter Cathedral, to the memory of the author of the "Ecclesiastical Polity." Hooker, a native of Heavitree, had his early education in the Grammar School, Exeter. For the likeness, Mr. Drury has followed the portrait of Hooker in the National Portrait Gallery.

RECENT WILLS.—The late Professor Vernon Harcourt, M.Inst.C.E., Emeritus Professor of Civil Engineering, University College, London, has left estate valued at 56,535*l.* gross, and net personalty of 49,085*l.* He has bequeathed 1,000*l.* to the Institute of Civil Engineers for the foundation of a yearly (or biennial) prize, lecture, medal, or premium, in connexion with maritime, river, or canal engineering. He provides that after his widow's decease a sum of 1,000*l.* shall pass to Oxford University, if there shall have been founded there, in his and her lifetime, a school of engineering or mechanical science, the money to be applied to the advancement of teaching of engineering science; he has also bequeathed 200*l.* to University College, London, for a yearly prize in civil engineering, and selections from his books to the Institute of Civil Engineers and to Oxford University, the latter bequest including twenty volumes of the "Annales des Ponts et Chaussées"—the Telford premium he won in 1882. We may here mention that in congregation at Oxford on October 29 the preamble was passed by 152 votes to 20 of the statute for the establishment of a professorship of engineering science in the University.——The will of the late Mr. Samuel J. Waring, chairman of Waring & Gillow, Ltd., has been proved, with an estate of 78,785*l.* gross value, and net personalty of 63,086*l.*

HARROW-ON-THE-HILL.—An interesting discovery has been made during some repairs at the ancient parish church of Harrow. The tower is very old, and the rough-cast with which it was covered having become loose it was decided to replace the whole of it. In hacking off the old plaster two examples of Norman windows were brought to light near the base of the tower, the one facing north in a good state of preservation, but the south window not so good. They had been filled in with rough rubble work, probably with the idea of giving additional strength to the base of the tower, but both have now, under the direction of Sir Aston Webb, been re-opened. The work has been carried out by Messrs. Collins & Charles, builders, Harrow, with Mr. F. J. Wren as general foreman.

CENTRAL PUBLIC LIBRARY, FULHAM.—A sum of 15,000*l.* has been given by Mr. Carnegie for a new central library in Fulham. The public library was opened in 1887 in Westfield House, one of the few remaining old detached residences which lay along the high road from Walham Green to Fulham. The house, however, is gradually falling into decay, and has become but ill-adapted for its present uses.

THE BUILDING TRADE IN EDINBURGH.—At the annual meeting of the Brethren of the Guildry of Edinburgh, held on the 28th in the Council-chambers, Lord Provost Gibson presiding, Mr. James Wilson was re-elected Dean of Guild. Dean of Guild Wilson, in accepting office for another term, said the past year had been one of general depression in the building trade, but, strange to say, the Dean of Guild Court had been well employed. No fewer than 901 warrants had been passed, 556 of them being minor warrants or remits to the Burgh Engineer. The approximate value of the property was 611,591*l.*, as against 813,810*l.* in the previous year. Proceeding, Mr. Wilson said some uniform plan or system might be laid down which, without unduly hampering owners of land or detracting from feuing value, would ensure that as building went on it would be on such lines as would conduce to the beauty and dignity of a well-ordered city and to the health, comfort, and convenience of the people. The subject of building laws in force in the city was of the greatest importance, and instead of lying piecemeal in the Police Act of 1879 and the Municipal Statutes between that year and 1906, it was high time that Edinburgh, like other cities of her class, should have the whole of the law relating to building in an up-to-date Building Act. To facilitate this object the members of the Dean of Guild Court had been going over the draft of a roads and buildings Order, incorporating the present enactments and containing a number of new proposals, some of which the members of the Court unanimously approved, and others, which, if new and debatable, were at least worthy of all consideration. Mr. Alexander Darling was re-elected Clerk, Councillor Chesser was re-elected treasurer, and Mr. James Russell was re-elected officer. Vacancies in the Council were also filled up.

GLASGOW AND DISTRICT BUILDING TRADES EXCHANGE.—On the 31st ult. the annual meeting of the Glasgow and District Building Trades Exchange, Ltd., was held in the office of the Secretary, Mr. David Cook, 67, Hope-street. Ex-Deacon-Convener Goldie presided. It was stated that the credit balance for the year was 10*l.* Considering the fact that, owing to extreme dulness in all branches of the building trade all the Exchange sources of income had suffered, the directors were of opinion that the accounts must be considered satisfactory. The Chairman, in moving the adoption of the report, said that a year ago they met under very depressing circumstances, and consoled with each other on the state of trade. He did not know that they were any better that day—in fact, while trade had been fairly good generally it seemed to him the building trade had been quite exceptional, and the outlook was not very prosperous. He did not think they would have a revival of trade until circumstances inside the city were very much altered. They had in the city that day 1,000 more empty houses than they had last year. The report was adopted.

A PLANK-END PROTECTOR.—Messrs. A. Bennett & Co., painting-brush manufacturers (Manchester), send an illustration and diagram of their simple patent for preventing the ends of scaffold planks from splitting. This is a plate of iron, with two holes for taking screws, slipped into a groove of the same depth cut in the end of the plank, with countersunk screws through the plank and the iron. The object is, of course, to protect the end of the plank without any exterior hooping, which would scratch the floors when pulled about in a house.

NORTHAMPTON POLYTECHNIC INSTITUTE, CLERKENWELL.—The annual prize distribution and conversazione will be held on Friday and Saturday, November 29 and 30 next. The Duke of Connaught will distribute the prizes on November 29, and after the prize distribution the whole of the laboratories, workshops, drawing office, and studios of the institute, both in the main building and in the British Horological Institute adjoining (the Technical Optics Department), will be on view in working order. The conversazione of members and students will be held on the following evening, Saturday, November 30, in both buildings.

DWELLINGS OF THE POOR.—The Lord Mayor (Sir William Treloar) presided on the 4th inst. at the Mansion House at the annual meeting of the Mansion House Council on the Dwellings of the Poor, which was started at the Mansion House in 1884, and whose objects were to look after the dwellings of the poor and assist in their improvement. In the course of the annual report it was stated that the executive had continued to employ fully the services of their inspector in London and Greater London in order to deal with complaints which the local authorities had failed to discover or to remedy. The total number of inspections made during the twelve months was 2,652. Many of the cases had to be inspected several times before they could be finally dismissed as remedied. The number of remedied cases was 491. Besides the cases dealt with by the Central Office numerous other cases were dealt with by local committees. A number of complaints had been received as to the sanitary condition of houses and districts outside the Metropolitan area. These had been sent on to the Rural Housing and Sanitation Association, with which the council was in hearty co-operation.

TRADES UNION RATE OF WAGES.—At the meeting of the Kensington Borough Council on Tuesday, the Works Committee reported that they had again considered the matter, referred back at the previous meeting, as to the advisability of the Council requiring that in all cases of works carried out for them under contract, the contractor or contractors shall display, in a prominent position accessible to all the workmen engaged on the work, a schedule clearly printed or written showing the rates of wages to be paid, and the hours of labour to be observed in connexion with the particular contract. The Committee now recommended:—

"That it be an instruction to the Borough Engineer, or other official responsible for supervising the execution of any contract entered into with the Council, in the event of their having any suspicion that a contractor is not paying the rates of wages and observing the hours of labour recognised by associations of employers and trade unions and in practice obtained in the district in which the work is executed, to take steps to investigate the matter with a view to the due enforcement of the condition of the contract relating thereto."

This was agreed to without discussion.

Legal.

CASE UNDER THE LONDON BUILDING ACT.

THE case of the Attorney-General and others *v.* Metcalf & Greig and others came before the Court of Appeal, consisting of the Master of the Rolls and Lords Justices Moulton and Farwell, on the 6th inst., on the appeal of the plaintiffs from a judgment of Mr. Justice Kekewich in the Chancery Division.

The action, which raised an important question of construction under the London Building Act, 1894, was brought by the plaintiffs for an injunction to restrain the defendants from erecting any building on the west side of Salem-road, Paddington, contrary to the provisions of the London Building Act, 1894, and for a mandatory order requiring the defendants to take down so much of the block of flats as had been erected contrary to the provisions of the Act.

The short facts of the case were these: The defendants, William Whiteley, Ltd., were the owners of land abutting upon the west side of Salem-road, and bounded on the south by the Moscow-road, and that company, on July 3, 1899, conveyed to the Law Debenture Corporation, Ltd., the land upon trust for debenture-holders of the company. On March 30, 1903, Wm. Whiteley, Ltd., granted to the defendants, Messrs. Metcalf & Greig, a firm of architects, upon the completion of certain buildings to be erected by them on the land, a lease of the land for ninety years, and in March, 1903, Messrs. Metcalf & Greig mortgaged the premises to the late Mr. Wm. Whiteley as trustee for the company. In October, 1903, Messrs. Metcalf & Greig executed a second mortgage in favour of the defendant, Mr. Bond, who, in the latter part of 1904, went into possession of the property. The defendants, Messrs. Metcalf & Greig, had erected on the land agreed to be leased to them a block

of flats, it being alleged that the external walls of which in the Salem-road were 62 ft. high. The piece of land on which the flats were built was a corner plot, and fronted partly to Salem-road and partly to the Moscow-road. The building was about 40 ft. high up to the gable, the gable being about 20 ft. high, and consisted of two stories. The case of the plaintiffs was that the building in the circumstances ought not to have been more than 40 ft. high, that the building was not a gabled building within the meaning of the Act, and that in the measurement of the height the whole building must be looked to, and not the separate parts, some of which had been recessed rrom the side of the street. The case for the defendants was that Salem-road was not a new street within the meaning of the Act, and that the measurement must be made in respect of each part of the building, whether recessed or not. Defendants further said the plaintiffs had disentitled themselves to an injunction by reason of *laches*. Mr. Justice Kekewich having given judgment in favour of the defendants, the plaintiffs now appealed.

Mr. P. O. Lawrence, K.C., Mr. Danckwerts, K.C., and Mr. Cunningham Glen appeared for the appellants; and Mr. H. Avory, K.C., and Mr. Tomlin for the respondents.

Mr. Lawrence, in opening the case, said the decision of Mr. Justice Kekewich involved very serious consequences to buildings in London, and therefore the case raised a very important point under the Act. The whole question turned upon the construction of sect. 49, which provided that no new building should, without the consent of the London County Council, be erected on the side of any street formed after August 7, 1862, and of a less width than 50 ft., so that the height should exceed the distance of the front of the nearest wall of such building from the opposite side of such street. "Height" was defined by sect. 5 subsect. 21 to mean the measurement taken from the level of the footway immediately in front of the centre of the face of the building to the level of the top of the parapet, or, where there is no parapet, to the level of the top of the external wall, or in the case of gabled buildings to the base of the gable. His submission was that the words "front or nearest external wall of such building" meant the front wall of the building if it had one straight front wall, and if it had recessed walls then it meant the nearest wall to the opposite side of the street. He had first of all to prove that Salem-road was a new street.

The Master of the Rolls: Is it disputed that it is a new street?

Mr. Lawrence: It was disputed very strenuously in the Court below, but Mr. Justice Kekewich decided that point in my favour.

Mr. Avory said he could not now dispute that Salem-road was a new street because the learned judge had found as a fact that it was so.

Mr. Lawrence said the defendants had persuaded the learned judge in the Court below to hold that sect. 49 meant that they could take any part of the building and consider that as a separate part of the building for the purpose of finding out which was the front or nearest external wall. He submitted that the section contemplated only one building and one front or nearest external wall. What they had got to ascertain was what was the front or nearest external wall of the building, and he submitted that the nearest external wall was the one nearest to the opposite end of the street, and then the height of the building was fixed from that.

Mr. Avory, on behalf of the respondents, contended that, whatever their lordships' decision on the construction of sect. 49 might be, the plaintiffs, having regard to the delay which had taken place, were not entitled to a mandatory injunction. On the question as to the construction of the section he submitted the decision of Mr. Justice Kekewich was right, and should be affirmed.

During the course of the arguments it was stated that the consent of the London County Council was never applied for nor given, and the Master of the Rolls stated that although they were against Mr. Avory's contention upon the question of construction he felt disposed to give the defendants an opportunity of applying to the Council to see if the necessary consent could be obtained.

Mr. Danckwerts, on behalf of the Attorney-General, consented to this course being followed.

Mr. Tomlin having also addressed the Court on behalf of the respondents,

In the result their lordships held that the contention of the appellants as to the interpretation of sect. 49 of the Act was right, and that Mr. Justice Kekewich was wrong in holding it was the duty of the Court to consider the height of the different parts of the building, and that it was necessary to consider the front or nearest external wall of such part as was alleged to have offended against the Act. Leave, however, was given to the respondents, before the order of the Court was drawn up, to apply to the London County Council for their consent as provided for under sect. 49.

CONTRACTORS' CLAIM FOR 40,000*l.* DAMAGES.

MR. MUIR MACKENZIE, the Official Referee, on the 4th inst., concluded the hearing of the case of Jones & Son *v.* the Maesteg Urban District Council, an action by the plaintiffs, a firm of contractors at Neath, against the defendants to recover damages laid at 40,000*l.* for preventing the plaintiffs from completing a reservoir for supplying the town of Maesteg with water, and which the defendants had employed the plaintiffs to construct for them.

Mr. Acland, K.C., and Mr. Ricketts appeared for the plaintiffs; and Mr. S. T. Evans, K.C., and Mr. Hutchinson for the defendants.

The plaintiffs' case was that in 1903 the defendants, requiring a larger water supply, employed the plaintiffs to construct a reservoir in the hills adjoining the town by means of a dam constructed principally of puddle clay and concrete, which was to form a lake by impounding the water which came down the hills. The contract price was to be about 30,000*l.*, together with such additional sums as might become payable for increased excavation or other circumstances incident to the character of the site chosen for the reservoir, and additional sums which might be occasioned by difficulties in obtaining suitable clay puddle. After the works had for a certain time proceeded the defendants were advised that the works could not be completed for anything like the price contemplated, but would involve the expenditure of a sum largely in excess of any sum the Local Government Board would allow the defendants to raise by way of loan on the security of the rates. The defendants thereupon gave the plaintiffs notice not to continue the work and ordered the removal of their plant. The plaintiffs alleged that in the circumstances they were entitled to the sum claimed as compensation for the loss of money expended in the supply of plant and materials and payment of wages, and also for loss of profits which the plaintiffs would have made if they had been allowed to complete the reservoir.

A great mass of detailed evidence was given by experts on the question as to whether the contention of the defendants as to the alleged impossibility of constructing the reservoir except at a prohibitive cost was correct, and also as to the amount of compensation to which the plaintiffs would be entitled if their claim was held to be well founded.

Mr. Evans, in opening the defendants' case, said it was a very serious one for his clients, the local authority, who were responsible for the ratepayers' money. He stated that the contractual powers of the defendants were limited by statute under the Public Health Act, which gave local authorities power to borrow money for work such as these upon the security of the rates, yet those powers were strictly limited under the Act both as to amount and also as to the way in which those powers were to be exercised. The contract in the present case was divided (1) into the period before the defendants suspended the work; (2) the period during the suspension of the work; and (3) the period since the plaintiffs had been told finally to discontinue the work. With regard to the first period plaintiffs made no claim except for retention money, but this did not become payable under the contract until the final certificate was given to the contractor by the Council's engineer, and this had not yet been done. As to the second period he submitted that the plaintiffs had already received a large sum of money and all they were morally entitled to. Apart from that the defendants had a complete defence, because in the first place the agreement on which the plaintiffs relied was not under seal as required by the Public Health Act, and secondly the contract itself allowed for suspension. So far as the total cessation of work was concerned, there was a clause in the contract which allowed the defendants to instruct the plaintiffs through their engineer to omit any portion of the work. At least he submitted that that was not an unreasonable construction to put upon the clause, because it could not be supposed that a local authority in the position of the defendants would be obliged to continue in a course involving the expenditure of a large sum of money to complete their contract and would be unable to do their duty as a public authority and say they would not embark further upon the loss. With regard to the question of damages, in case the Official Referee should hold that there had been a breach of contract, he contended so far as the items in dispute as to the excavations below the depth and the question of suitable clay to be used for the foundation of the dam were concerned, that no contractor would ever contract on the basis that such a line was a fixed and determined depth in no way liable to be varied if the nature of the strata required it. In fixing the price the contractor would take into consideration the chance of being obliged to excavate deeper, and it would be for the engineer to say when he considered a good basis for the foundation had been reached. With regard to the clay, the price had been fixed upon the basis that all the clay used was to be fetched from Court Sart, twelve miles from the site, and with the exception of a small layer of concrete at the bottom of the trench, the whole of the trench was to be filled with clay. It was submitted that this was not a correct basis, as the Council were neither obliged to obtain all the clay from this spot nor were they obliged to have the trench entirely filled with this material. It had been shown by the experts called on behalf of the plaintiffs that but for the contingency of coal being mined below the dam, concrete would be a better substance than clay to fill the trench with.

Evidence was then called on behalf of the defendants to prove that the site chosen was a bad one, and that if the reservoir were completed it would never be watertight. Evidence was also given as to the existence of extensive clay-fields near the site, and samples were produced in Court to show that the clay at those places was of good quality and fit for use in the trench.

After hearing arguments by Mr. Evans and Mr. Acland on behalf of their respective clients, the learned Official Referee reserved judgment.

Patents of the Week.

APPLICATIONS PUBLISHED.*

20,044 of 1906.—J. BOIS: *Safety Locks.*

THIS relates to a lock comprising various members co-operating with one another for producing the forward and rearward motions of the bolt with fixing in each position, and a tumbler which is raised and lowered by the bolt, the movements of the bolt combined with those of a bridge piece producing the ascent and descent of the counter-plates.

22,163 of 1906.—J. SOUTHERN, T. WINTRINGHAM, and S. H. WILLS: *Apparatus for Conveying and Piling Timber, and for like purposes.*

This relates to a transporter for deals or the like comprising a single span main conveyor section capable of vertical adjustment at both ends, and an auxiliary conveyor section connected thereto and adapted to be moved at its free end vertically or horizontally with relation to the main section.

24,638 of 1906.—W. ELLIS: *Pipe Connexions for Flushing Cisterns.*

This relates to means for flushing cisterns, and consists in casting a boss on the inner side of the bottom and casting the stand-pipe therein.

24,795 of 1906.—A. BODE and K. BOTTCHER: *Device for Relieving the Winding-up Arrangement of Beams on Floating Cranes.*

This relates to a floating crane provided with a counter-weight, and is characterised by the fact that the latter is simultaneously connected to the beam or jib, thereby achieving not only a balancing of weight for the crane pontoon, but also easing the drawing-up of the beam.

25,002 of 1906.—G. S. REED: *Panels for Windows, Doors, and the like.*

This relates to a sash-panel in which a lever-dog pivoted on the upper sash engages automatically with a plate fixed on the lower sash, and consists in the provision of handles whereby the sashes can be moved into position.

27,063 of 1906.—C. LUBCKE: *Cranes.*

This relates to a builder's crane, consisting of posts in front of the building fitted with vertically adjustable brackets overhanging towards the building which carries the ways for a travelling crane, the two middle brackets extending in the opposite direction away from the building, and forming the ways for a truck which carries the part of the main ways between said two brackets so that the materials are first hoisted while the truck is run out, and then, after the truck has been run back into a line with the fixed ways, can be moved to where they are required by running the crane on said fixed ways to either side.

27,637 of 1906.—F. W. MEWS: *Locks of every description.*

This relates to a lock comprising a casing having an opening and a bolt within said casing, detent devices in said casing and a plurality of movable locking members normally engaging said bolt, and adapted to engage said detent devices in the locked position of the lock, the bolt and locking members aforesaid being adapted to be inserted into the casing through said opening without removal of a part of said casing.

28,276 of 1906.—M. WATSON: *Automatic Flushing Cisterns and the like.*

This relates to means for automatically regulating or varying the supply of water to a flushing cistern, and consists in the employment of mechanism adapted so that it will effect such cut off through a train of gear wheels.

*All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

PATENTS.—*Continued on page* 509

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xix.; Auction Sales, xxviii.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

NO DATE.—**Enniscorthy.**—MARKET HOUSE BUILDINGS.—The Enniscorthy Urban Technical Instruction Committee are prepared to pay 15*l.* for plans, estimate of specification, for reconstructing Market House Building and adding another story thereto. Mr. P. J. Shaw, Secretary, Enniscorthy.

* NO DATE.—**Wigan.**—STATUE.—The Committee of the Sir Francis Sharpe Powell Testimonial Fund invite sketches and models for a statue. For further particulars refer to an advertisement in this issue.

Contracts.

BUILDING.

NOVEMBER 11.—**Lumphinnans.**—BOWLHOUSE, ETC.—For making and laying out of proposed bowling green, building of bowlhouse, and erection of unclimbable fence at Lumphinnans for the Lumphinnans Public-House Society, Ltd. Plans, etc., may be seen, and schedules of measurements obtained, on application to Mr. John Houston, architect and surveyor, St. Margaret-street, Dunfermline.

NOVEMBER 13.—**Clackmarras.**—SCHOOL ADDITIONS.—The mason, carpenter, slater, plumber, plaster, and painter works of additions to Clackmarras School. The plans, etc., may be seen with Mr. John Wittet, architect, Elgin.

NOVEMBER 13.—**Drumoak.**—SCHOOL ALTERATIONS, ETC.—Drumoak School Board invite tenders for a new schoolmaster's house, and additions and alterations at the Central School, Drumoak. Plans, etc., may be seen at the Schoolhouse, and with Messrs. Walker & Duncan, C.E., and architects, 3, Golden-square, Aberdeen.

NOVEMBER 13.—**Glamorganshire.**—SCHOOL BUILDINGS.—Glamorgan C.C. Education Committee invite tenders for the following works, viz.:—(1) Erection of a new school at Tongwynlais; (2) erection of a new school, etc., at Craigcefnparc, Swansea Valley; (3) erection of a new caretaker's house at Tonyrefail; (4) erection of a new caretaker's house at Pentyrch; (5) additions and alterations to the St. Athan Council School; (6) erection of new offices, etc., at Glyncorwg Council School; (7) erection of new playsheds at the Pontardulais Council School; (8) gas lighting at the Godre'rgraig School, near Pontardawe. Plans, etc., may be seen, and copies of the bill of quantities obtained, for Work No. 1, at the Taff's Well Police-station; for the Work No. 2, at the Clydach Police-station; and for Work No. 6, at the Glyncorwg Police-station. Plans may be seen, and copy of the specification obtained, for Work No. 3, at the Boys' School, Tonyrefail; for Work No. 4, at the Taff's Well Police-station; for Work No. 5, at the St. Athan Council School; for Work No. 7, at the Pontardulais Police-station; and for Work No. 8, at the Pontardawe Police-station. The plans, etc., for all the works may also be seen or obtained at offices of Mr. T. Mansel Franklen, Clerk of the Glamorgan C.C., Glamorgan C.C. Offices, Westgate-street, Cardiff.

NOVEMBER 14.—**Auckland.**—ALTERATIONS TO BOARD-ROOM.—The Board of Guardians invite tenders for alterations to their Board-room, the reseating of the same, and the building of a small new room adjoining. Plans, etc., can be seen at the office of Mr. F. H. Livesay, Architect and Surveyor, Bishop Auckland.

NOVEMBER 14.—**Guildford.**—STABLES.—Guildford T.C. invite tenders for certain reconstructional work to some stables at Slyfield Farm. Plan, etc., may be seen, and form of tender obtained, on application to Mr. C. G. Mason, A.M.Inst.C.E., the Borough Surveyor, at his offices in Tuns Gate.

NOVEMBER 14.—**Larne.**—RESIDENCE AND SURGERY.—For building residence and surgery, at Main-street, Larne, for Dr. William J. Wilson. Copies of plans and specification may be obtained at the office of the architect, Mr. J. P. Irvine, M.R.Inst.A.I., 49, Waring-street, Belfast, on deposit of 1*l.* 1s.

NOVEMBER 14.—**Macclesfield.**—LABORATORY.—Macclesfield Sewage Sub-committee invite tenders for the erection of a laboratory at the Butley Sewage Works. Plans, etc., may be seen, and bill of quantities obtained, on application at the office of the Borough Surveyor on payment of 1*l.* 1s. deposit.

NOVEMBER 14.—**Plumstead.**—ALTERATIONS TO NOS. 3 AND 5, GOSSAGE-ROAD, PLUMSTEAD.—Woolwich B.C. invite tenders for carrying out certain work to remedy the dampness in the basements of Nos. 3 and 5, Gossage-road, Plumstead. Specification, etc., can be had, and plans inspected, at the office of Mr. J. Rush Dixon, M.Inst.C.E., Borough Engineer, Town Hall, Woolwich

NOVEMBER 15.—**Dobwalls.**—HOUSE.—The erection of a dwelling-house at Dobwalls, for Mr. W. Statton. Pellegenna, St. Cleer. Plan, etc., can be seen at Pellegenna.

NOVEMBER 15.—**Loughrea.**—CONVENT WING.—For erecting a new wing to the Convent of Mercy, Loughrea. The plans, etc., can be seen at office of Messrs. W. H. Byrne & Son, architects, 20, Suffolk-street, Dublin. Quantities have been prepared by Mr. A. B. Bruntz, No. 1, College-street, and can be had on application.

NOVEMBER 15.—**Wimbledon.**—HOUSES.—The erection of a pair of semi-detached houses in Durham-road, Raynes Park, Wimbledon. Plans, etc., prepared by Messrs. Belfrage & Saville, architects, may be inspected at their offices at 27, Chancery-lane, W.C.

NOVEMBER 16.—**Latchley.**—FARMHOUSE.—The building of a farmhouse at Solomons Farm, Latchley. Plans, etc., can be seen on application to Mr. Neal, the tenant.

NOVEMBER 16.—**Sheffield.**—TEA AND REFRESHMENT ROOM IN ENDCLIFFE WOODS.—Sheffield General Purposes and Parks Committee invite tenders for the work. Plans may be seen, and quantities obtained, at the City Surveyor's office, on payment of 10s.

NOVEMBER 18.—**Mexborough.**—MARKET EXTENSION.—Mexborough U.D.C. invite tenders for the erection of a retaining wall, market shops, and other works incidental thereto, at Market-street, Mexborough. Plans may be seen and a copy of the particulars, etc., obtained, at the Council Offices, on a deposit of 1*l.*

* NOVEMBER 18.—**Teddington.**—WORKING-CLASS DWELLINGS.—The Teddington U.D.C. invite tenders for 114 working-class dwellings on land situate in Shacklegate-lane, Teddington. For further particulars refer to an advertisement in this issue.

NOVEMBER 19.—**Blackwell.**—SCHOOL WORKS.—The C.C. of Durham invite tenders for alterations at Blackwell Council School. Plans, etc., may be seen at the school, or at the office of the County Education Committee's Architect, Shire Hall, Durham.

NOVEMBER 19.—**Winlaton.**—ALTERATIONS TO SCHOOL.—The C.C. of Durham invite alterations, etc., at Winlaton Council School. Plans, etc., may be seen at the school or at the office of the County Education Committee's Architect, Shire Hall, Durham. Bills of quantities may be obtained from Mr. A. J. Dawson, Clerk to the Education Committee, Shire Hall, Durham.

NOVEMBER 20.—**Bootle.**—SHELTER, ETC.—The Corporation of Bootle invite tenders for the construction of shelter, latrines, etc., at the Peel-road Children's Playground. Plans, etc., may be seen, and bills of quantities obtained, at the office of the Borough Engineer.

NOVEMBER 20.—**Bristol.**—EXTENSION OF ASYLUM BUILDINGS.—The Visiting Committee of the Lunatic Asylum invite tenders for the extension of the Asylum Buildings. Plans, etc., can be seen at the City Valuer's Office, The Exchange, Bristol, and copies of the bills of quantities, etc., can be obtained on payment of 5*l.* 5s.

* NOVEMBER 20.—**Harrow-road.**—WORKHOUSE.—The Paddington Guardians invite tenders for alterations at the Workhouse in Harrow-road. For further particulars see advertisement in this issue.

* NOVEMBER 20.—**Manchester.**—NEW SORTING OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for the superstructure of the new sorting office at Newton-street, Manchester. For further particulars refer to an advertisement in this issue.

* NOVEMBER 23.—**Ilfracombe.**—NEW SCHOOL.—The Devon County Education Committee invite tenders for a new elementary school at Shepherd's Park, Ilfracombe. For further particulars refer to an advertisement in this issue.

* NOVEMBER 26.—**West Ham.**—HOUSE, ETC.—The West Ham B.C. invite tenders for the erection of a boundary wall, house, etc., at Abbey Mills. For further particulars refer to an advertisement in this issue.

NOVEMBER 28.—**Styal Homes.**—SCHOOL ADDITIONS.—The Guardians of the Poor of the Chorlton Union invite tenders for the erection of additions to the senior schools at Styal Homes, Cheshire. Plans may be seen at the office of Messrs. J. W. Beaumont & Son, architects, 10, St. James's-square, Manchester, from whom quantities may be obtained on payment of a deposit of 2*l.* 2s.

NOVEMBER 29.—**Hunstanton.**—SCHOOL.—Norfolk Education Committee invite tenders for the enlargement of New Hunstanton school. Names to the architect, Mr. H. J. Green, Castle Meadow, Norwich, and Paradise-chambers, King's Lynn. A deposit of 2*l.* 2s. will be required.

NOVEMBER 30.—**Wallasey.**—SCHOOL.—Cheshire C.C. (Higher Education Sub-Committee for Wallasey) invite tenders for new high school for girls, Mount Pleasant-road, in accordance with drawings and specifications prepared by Messrs. Appleyard & Quiggin, A.R.I.B.A., 67, Lord-street, Liverpool. Copies and bills of quantities, etc., may be obtained from the architect's office on receipt of a deposit of 1*l.* 1s.

* DECEMBER 2.—**Herts.**—ALTERATIONS AND ADDITIONS.—The Herts C.C. Education Committee invite tenders for alterations and additions at the Sawbridgeworth, Fawbert, and Barnard C.C. School. For further particulars refer to an advertisement in this issue

DECEMBER 28.—**Brisley, East Dereham.**—SCHOOL ENLARGEMENT.—The Managers of Brisley Church of England Schools invite tenders for the improvement and enlargement of the buildings. Plans, etc., may be seen at the schools.

* NO DATE.—**Chepping Wycombe.**—SCHOOL.—The Chepping Wycombe B.C. invites tenders for a new elementary school. For further particulars refer to an advertisement in this issue.

NO DATE.—**Hull.**—OFFICES, STORES, ETC.—For boiler-making, engineers', carpenters', and boatmaking shops, offices, and stores, for the St. Andrew's Engineering Company. Plans, etc., at offices of Messrs. Freeman, Son, & Gasked, architects and surveyors, Hull.

NO DATE.—**Leicester.**—ERECTION OF A CHILDREN'S RECEIVING HOME.—The Guardians invite tenders from local builders for the work. Bills of quantities may be obtained upon application at the office of the architect, Mr. W. E. Keites, Market-street, upon deposit of 1*l.* 1s.

NO DATE.—**Llandudno.**—VILLAS.—For the erection of a pair of villas in Llandudno. Apply Mines, 61, Lord-street, Liverpool.

NO DATE.—**Musselburgh.**—IRON SCHOOL BUILDING.—Temporary iron school building wanted, to accommodate about 100 scholars, in two class-rooms, with necessary cloak-rooms, etc. To be erected at village two miles from Inveresk Station, Musselburgh. Further particulars may be had from Mr. A. Murray Hardie, architect, 20, George-street, Edinburgh.

ENGINEERING, IRON, AND STEEL.

NOVEMBER 12.—**Manchester.**—ELECTRIC LIGHTING.—The Electricity Committee of the Manchester Corporation invite tenders for the supply and erection of the following:—Specification No. 18—High and low tension switchgear; specification No. 19—Transforming plant; specification No. 20—motor converters. Specifications, etc., may be obtained on application to Mr. F. E. Hughes, Electricity Department, Town Hall, Manchester.

NOVEMBER 12.—**Penzance.**—ENGINE.—Penzance Board of Guardians invite tenders for the supply of a suitable engine capable of raising 400 gallons of water per hour. Application to view to Master, Workhouse, Madron.

NOVEMBER 12.—**Wallasey.**—WAGON.—Wallasey U.D.C. Works Committee invite tenders for the supply of a wagon or lorry, with trestle, in accordance with drawing to be seen, and specification to be obtained, on application to Mr. W. H. Travers, Engineer and Surveyor, Public Offices, Egremont, Cheshire.

NOVEMBER 13.—**Sydney.**—METERS.—The Municipal Council of Sydney, N.S.W., invite tenders for the supply and delivery into their stores, in Sydney, of (*a*) integrating alternating-current energy meters; (*b*) integrating direct-current energy meters or ampere-hour meters. Copies of specification, general conditions, and form of tender may be obtained from Messrs. Preece & Cardew, 8, Queen Anne's-gate, Westminster, London, S.W., on payment of a deposit of 2*l.* 2s.

NOVEMBER 16.—**Goole.**—IRON TUNNEL.—Goole U.D.C. invite tenders for the execution of certain works in connexion with the construction of an iron tunnel under the Goole and Knottingley Canal at Goole. Plans, etc., may be inspected at the Gas Works on application to Mr. T. E. Franklin, Gas and Water Engineer; and copy of the specification, etc., may be obtained on payment of the sum of 2*l.* 2s.

NOVEMBER 16.—**Haslingden.**—RAILS.—Haslingden T.C. invite tenders for the supply of about 500 tons of steel rails, fishplates, bolts, tiebars, manganese steel points and crossings, and special work in curves and laying out at the Tramway Depôt. Specifications, etc., may be obtained on application to Mr. J. Singleton Green, Borough Engineer, Municipal Offices, Haslingden.

NOVEMBER 20.—**Bootle.**—RAILINGS.—The Corporation of Bootle invite tenders for the erection and completion of wrought-iron railings and gates to enclose the Peel-road Children's Playground. Plans, etc., may be seen, and quantities obtained, at the office of Mr. B. J. Wolfenden, A.M.Inst.C.E., Borough Engineer.

NOVEMBER 20.—**Portrane.**—WATERWORKS EXTENSION.—The Joint Committee of Richmond District Asylum invite tenders for the carrying out of Portrane Asylum waterworks extension, near Donabate, Co. Dublin. Plans, etc., may be seen, and, with a form of tender, etc., can be obtained, either at the office of the engineer, Mr. Francis Bergin, B.E., 36, Westmoreland-street, Dublin, or at the office of Mr. W. J. Murphy, Chief Clerk, Offices, Grangegorman, Dublin.

MISCELLANEOUS.

NOVEMBER 11.—**London.**—TIP-CARTS.—St. Marylebone B.C. invite tenders for the supply of tip-carts and tip-vans for the removal of snow. Further

particulars, etc., may be obtained on application to Mr. J. Paget Waddington, M.Inst.C.E., Borough Surveyor, at the Town Hall.

NOVEMBER 12.—**Breaston.**—SCAVENGING.—Shardlow R.D.C. invite tenders for the removal of night soil, house refuse, etc., in the Parish of Breaston. Forms of tender, etc., can be obtained from Mr. J. W. Newbold, Clerk to the Council, Becket-street, Derby.

NOVEMBER 13.—**Ryton.**—SCAVENGING.—The Ryton U.D.C. invite tenders for the removal of house refuse and the cleansing of earth closets, privies, and ashpits. Forms of tender, etc., may be obtained on application to Mr. John P. Dalton, Surveyor, Council Offices, Ryton.

✱ NOVEMBER 14.—**London.**—LIFT.—The Guardians of St. Mary, Islington, invite tenders for the provision and fixing of a lift at the St. John's-road Workhouse, Upper Holloway, N. For further particulars refer to an advertisement in this issue.

NOVEMBER 15.—**Kendal.**—FLOOR TILES.—Kendal Corporation invite tenders for floor tiles required for No. 3 circular filters, 100 ft. in diameter. Plans may be seen, and the necessary information obtained, from Mr. F. W. Oxberry, Borough Engineer, Town Hall, Kendal.

NOVEMBER 18.—**Bramcote.**—SCAVENGING.—The R.D.C. of Stapleford invite tenders for the removal of nightsoil, house refuse, etc., in the Parish of Bramcote. Form of tender, etc., may be obtained from Mr. Frederic Wm. Fox, Clerk to the Council, Clerk's Office, Bank-chambers, Beastmarket-hill, Nottingham.

NOVEMBER 23. — **Swansea.** — STORES. — Swansea Harbour Trustees invite tenders for the supply of iron, castings, chains, timber, oils, ironmongery, and general stores. Forms of tenders, etc., may be obtained on application to the Engineer, at the Harbour Office.

NOVEMBER 30.—**Durham.**—DESKS.—Durham Education Committee invite tenders for a two years' supply of desks and other furniture. For particulars of requirements apply to Mr. A. J. Dawson, Clerk to the Education Committee, Shire Hall, Durham.

NO DATE.—**Abertridwr.**—LAYING PITCH.—For laying a cricket pitch at Abertridwr. For further particulars apply Mr. W. F. Rowland, Abertridwr House, Abertridwr.

NO DATE.—**Pentre.**—DRIVING HEADINGS.—For driving hard headings at Pentre Colliery. Particulars to be had at the Pentre Colliery Office.

PAINTING, etc.

NOVEMBER 9-18.—**West Ham.**—CLEANSING, ETC., OF SCHOOLS.—The Education Committee of West Ham invite tenders from contractors having their place of business in the Borough of West Ham for the cleansing, repair, and painting of schools. Written application on or before November 9 to Mr. William Jacques, A.R.I.B.A., Architect to the Education Committee, 2, Fen-court, London, E.C., for copy of specification and form of tender, which application must be accompanied by a deposit of 1*l.* (cheques will not be accepted).

NOVEMBER 11.—**Macclesfield.**—PAINTING.—Macclesfield Hospital Sub-committee invite tenders for the external painting of the Infectious Hospitals, Moss-lane. Specifications may be seen on application to the matron.

NOVEMBER 12.—**Belfast.**—PAINTING, ETC.—Belfast Guardians invite proposals for painting, papering, and renovating the halls, staircases, rooms, etc., of the Abbey Administrative Block, at Whiteabbey. The specification can be seen at office of Mr. Joseph W. Robb, Clerk of the Union, Clerk's Office, Union Workhouse.

NOVEMBER 16.—**Bradford.**—PAINTING.—Bradford Guardians invite tenders for the outside painting of the Union Workhouse and Hospital Buildings, Horton-lane, Bradford. Name and address, along with a deposit of 2*l.* 2s., for specification to Mr. Fred. Holland, Engineer and Architect to the Board, 11, Parkinson's-chambers, Hustlergate, Bradford.

NOVEMBER 16.—**Cardiff.**—PAINTING.—The Guardians invite tenders for the internal colouring and painting of (1) a portion of the Cardiff Workhouse; (2) the Headquarters Homes, Ely, according to specifications, copies of which, together with forms of tender, may be obtained from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

✱ NOVEMBER 26.—**Leyton.**—CLEANING SCHOOLS.—The Leyton U.D.C. Education Committee invites tenders for cleansing, painting, and repairs to two schools. For further particulars refer to an advertisement in this issue.

ROADS, SANITARY, AND WATER WORKS.

NOVEMBER 11 — **Altham.** — PAVING. — The Main Roads and Bridges Committee of the Lancashire C.C. invite tenders for the labour and materials (except granite setts) required in paving a length of 300 lin. yds. of main road in the Township of Altham. Specification, etc., may be obtained on application to Mr. W. H. Schofield, A.M.Inst.C.E., County Surveyor, County Offices, Preston.

NOVEMBER 11.—**Great Missenden.**—ROAD-MAKING.—The Amersham R.D.C. invite tenders for road-making in Martins End-lane, Great Missenden. Plans and specification may be seen at the office of Mr. L. Hilsden, Surveyor to the Council, Amersham.

NOVEMBER 11.—**Loughborough.**—PAVING.—Loughborough T.C. invite tenders for providing and laying about 3,300 super. yds. of 2-in. concrete flagging, and 550 yds. of blue brick paving, together with about 370 yds. of splayed granite kerbing and channelling. Specification, etc., may be obtained on payment of a deposit of 2*l.* 2s.

NOVEMBER 11.—**Loughborough.**—SEWER.—Tenders are invited by the T.C. for the provision and construction of about 295 lin. yds. of 9-in. sanitary pipe sewer, Leicester-road. Specification, etc., can be obtained on payment of a deposit of 2*l.* 2s. Mr. Albert H. Walker, A.M.Inst.C.E., Borough Surveyor, Town Hall, Loughborough

NOVEMBER 11.—**Margate.**—TRENCHES.—Margate Water Works Department invite tenders for the digging and filling in of trenches for laying therein water mains in roads. Specification can be seen, and further particulars obtained, on application to Mr. F. Stanley, Manager of the Water Works Department, 18, Cecil-square, Margate.

NOVEMBER 11.—**Salford.**—WATER SUPPLY.—Chipping Norton R.D.C. invite tenders for carrying out water supply scheme at Salford in accordance with the specifications deposited at the office of Mr. R. Cooper, Sanitary Inspector, Charlbury, from whom all particulars can be obtained.

NOVEMBER 12.—**Cheriton.**—ROAD WORKS.—Cheriton U.D.C. invite tenders for levelling, metalling, paving, kerbing, channelling, laying surface-water drain, and making good Park-road, Cheriton. A deposit of 1*l.* 1s. must be paid on application for specification and quantities, which can be seen at the Surveyor's office, Cheriton.

NOVEMBER 12.—**Kinsley.**—DRAINAGE.—The R.D.C. of Hemsworth invite tenders for the supplying and laying of about 1,183 yds. of earthenware pipe sewer, and also for the construction of an additional collecting tank and filter, etc., at the Kinsley Sewage Disposal Works. Plans, etc., may be seen at the office of Mr. T. H. Richardson in Hemsworth.

NOVEMBER 13.—**Colwall, Ledbury.**—SEWERS.—Ledbury R.D.C. invite tenders for the construction of about 825 lin. yds. of 9-in. and 6-in. diameter earthenware and cast-iron pipe sewers, together with manholes. Plans, etc., may be see, and bill of quantities obtained, at the address of Mr. R. G. Gurney, surveyor, Ledbury, upon payment of 1*l.* 1s.

NOVEMBER 13.—**Toxteth Park.**—WATER SUPPLY FITTINGS.—Toxteth Park Guardians invite tenders for laying of a water supply pipe line, with fittings, connexions, etc., at the Workhouse, Smithdown-road, Liverpool, per specification to be seen on application to the Master at the Workhouse.

NOVEMBER 14.—**Blyth.**—STREET WORKS.—Blyth U.D.C. invite tenders for kerbing, flagging, and channelling freehold street. Plans, etc., may be seen, and form of tender obtained, at the offices of Mr. Robert Grieves, Engineer and Surveyor to the Council, Seaforth-street, Blyth.

NOVEMBER 14.—**Leeds.**—PAVING, ETC.—Leeds Highways Committee invite tenders for paving and flagging of streets. Drawings may be seen at the City Engineer's Office, Municipal Buildings. Forms of tender, etc., may be obtained, and copies of the documents forming the contract inspected, on application at the Highways Office, 155, Kirkstall-road.

NOVEMBER 15.—**Bournemouth.**—SEWER.—Bournemouth B.C. invite tenders for new sewer, Victoria-place. Full particulars, etc., can be obtained of the Borough Engineer, Mr. F. W. Lacey, at whose office drawings can be seen, provided that the sum of 1*l.* 1s. has been previously deposited.

NOVEMBER 16.—**Didsbury and Chorlton-cum-Hardy.**—DRAINAGE, ETC.—Manchester Corporation (Withington Committee) invite tenders for the draining, kerbing, flagging, and paving the carriageway with natural rock asphalt of Atwood-road, Didsbury, and Dartmouth-road, Chorlton-cum-Hardy. Plans, etc., can be seen, and a form of tender, etc., obtained, from the Surveyor to the Committee, Town Hall, West Didsbury, on payment of the sum of 1*l.* 1s.

NOVEMBER 16.—**Northwood.**—KERBING.—Ruislip-Northwood U.D.C. invite tenders for the laying of about 157 yds. of artificial stone kerbing, and repairing and making-up of footpath in Rickmansworth-road, Northwood. Further information, etc., may be obtained from Mr. W. Louis Carr, Surveyor, Council Offices, Northwood.

NOVEMBER 16.—**Withington, etc.**—STREET WORKS.—Manchester Corporation (Withington Committee) invite tenders for the draining, kerbing, flagging, and sett paving of Edward-street, Withington; Harrison-street, Withington; Rink-street, Withington; and the draining, kerbing, flagging, channelling, and tar macadamising of Chandos-road, Chorlton-cum-Hardy. Plans, etc., can be seen, and a form of tender, etc., obtained, from the Surveyor to the Committee, Town Hall, West Didsbury.

NOVEMBER 18.—**Earlsheaton.**—SETTLING TANKS.—Settling tanks, filters, drains, etc., at Earlsheaton. Drawings, etc., may be seen, and quantities, etc., obtained, at offices of Messrs. C. H. Marriott, Son, & Shaw, Dewsbury, on payment of 1*l.* 1s.

✱ NOVEMBER 18.—**Ilford.**—TAR PAVING.—The Ilford Education Committee invite tenders for tar paving Water-lane Schools playgrounds. For further particulars see advertisement in this issue.

NOVEMBER 19.—**Acton.**—STREET WORKS.—Acton D.C. invite tenders for making-up Florence-road, Newburgh-road, Derwentwater-road, part of Rammillies-road, and part of Agnes-road. Full particulars and quantities can be obtained from Mr. D. J. Ebbetts, surveyor, 57, High-street, Acton, W. Any person, firm, or company canvassing the members of the council, either directly or indirectly, for contracts under offer, shall be disqualified for receiving such contracts from the council.

NOVEMBER 19.—**Croydon.**—STREET WORKS.—Croydon B.C. invite tenders for the repair of Burlington-road (from Westbrook-road to a point 108 yds. north-east), within the Borough. Plans, etc., may be seen, and forms of tender obtained, on application at the Borough Road Surveyor's office, Town Hall, Croydon.

NOVEMBER 19.—**Spennymoor.**—FOOTPATH WORKS.—Spennymoor U.D.C. invite tenders for the concrete flagging and kerbing of the footpath leading from the station to Merrington-lane, Spennymoor. Plans, etc., may be seen, and forms of tender obtained, on application to Mr. C. R. Spencer, Surveyor to the Council, Spennymoor.

NOVEMBER 20.—**Bootle.**—DRAINAGE.—Bootle Corporation invite tenders for the laying of agricultural tile drains at the North Recreation Ground. Particulars may be obtained at the office of Mr. B. J. Wolfenden, A.M.Inst.C.E., Borough Engineer, Town Hall.

NOVEMBER 20.—**Bournemouth.**—MAKING-UP.—Bournemouth B.C. invite tenders for making-up Grant-avenue. Full particulars, etc., can be obtained of the Borough Engineer, Mr. F. W. Lacey, at whose office drawings can be seen, provided that the sum of 1*l.* 1s. has been previously deposited.

✱ NOVEMBER 20.—**Fulham.**—MAKING-UP CARRIAGEWAY.—The Fulham B.C. invite tenders for making-up the carriageway of Stevenage-road, section 3. For further particulars see advertisement in this issue.

✱ NOVEMBER 25.—**Wandsworth.**—MAKING-UP AND PAVING.—The Wandsworth B.C. invite tenders for making-up and paving of Pirbright-road, Southfield. For further particulars refer to an advertisement in this issue.

✱ NOVEMBER 26.—**West Ham.**—MAKING-UP STREETS.—The West Ham B.C. invite tenders for making-up various streets. For further particulars refer to an advertisement in this issue.

✱ NOVEMBER 26.—**West Ham.**—SEWER.—The West Ham B.C. invite tenders for the construction of a storm-relief sewer between Upper-road and Greengate-street, Plaistow. For further particulars refer to an advertisement in this issue.

DECEMBER 20.—**Masham.**—RESERVOIR.—Leeds Waterworks Committee invite tenders for the construction of a watertight reservoir, to be known as the Leighton Reservoir, and other work on the Pott Beck in the Urban District of Masham. Plans may be seen, and forms of tender, etc., obtained, on application at the office of Mr. C. G. Henzell, Waterworks Engineer, Leeds, on payment of 10*l.*

STONE, MATERIALS, AND STORES.

NOVEMBER 11.—**Birmingham.**—STORES.—Birmingham Water Committee invite tenders for the supply of certain stores for one year. Forms of tender and copies of conditions may be obtained at the offices, 44, Broad-street, Birmingham, on payment of 1*l.*

NOVEMBER 12.—**London.**—WHEELS, ETC.—Bombay, Baroda, and Central India Railway Directors invite tenders for the supply of (1) wheels and axles; (2) helical and volute springs; (3) miscellaneous tools and stores; (4) wood screws, pins, etc.; (5) metals. Forms, with specifications, can be obtained at offices of Mr. W. V. Constable, Secretary, offices, Gloucester House, 2, 3, and 4, Bishopsgate-street Without, London, E.C., on payment of 1*l.* 1s. each (which will not be returned).

NOVEMBER 13.—**Tunbridge Wells.**—ROAD METALLING.—The Council invite tenders for the supply and delivery of material for road metalling purposes. Further information may be obtained from the Engineer, Mr. W. H. Maxwell, A.M.Inst.C.E.

NOVEMBER 14.—**Salford.**—FIREBRICKS, ETC.—Salford Gas Committee invite tenders for the supply of firebricks, retorts, etc., for their Albion-street Works. Full particulars may be obtained on application to Mr. Wm. W. Woodward, Engineer, Gas Offices, Bloom-street, Salford.

NOVEMBER 15.—**Glasgow.**—WOOD BLOCKS.—Glasgow Corporation invite offers for supplying about 50,000 hard wood blocks, required for street paving. Specifications, etc., may be had on application at the office of Public Works, City Chambers, 64, Cochrane-street.

NOVEMBER 16.—**Bexhill.**—SUPPLY OF STONE.—Tenders are invited for the supply of 500 tons of best imperial blue quartzite macadam. Forms of tender may be obtained on application to Mr. George Ball, A.M.Inst.C.E., Borough Surveyor, Town Hall.

NOVEMBER 16.—**London.**—STORES.—The Conservators of the River Thames invite tenders for supplies of materials and stores. Specifications, etc., may be obtained at the Conservators' Offices, Victoria-embankment, E.C.

NOVEMBER 18.—**Manchester.**—IRONWORK.—Manchester Rivers Committee invite tenders for the supply and delivery to the Manchester Sewage Works, Davyhulme, Urmston, of the following ironwork for the construction of second-contact bacteria beds:—(*a*) Valves and sluices; (*b*) pipes and special castings. Separate tender forms (*a*) and (*b*), containing full particulars, may be obtained on application to the Secretary of the Rivers Department, Town Hall, Manchester.

NOVEMBER 19.—**Bangor.**—STEAM ROLLER, ETC.—Bangor (County Down) U.D.C. invite tenders for steam roller, stone breaking plant, and wagons. Mr. J. Milliken, Clerk to the Council, Town Hall, Bangor, County Down.

NOVEMBER 19.—**Dublin.**—STORES.—The Directors of the Midland Great Western Railway of Ireland Company invite tenders for the supply of stores. Forms of tender can be obtained, on payment of 6d. each, from the Storekeeper, General Stores Department, Broadstone Station, Dublin.

NOVEMBER 19.—**West Hartlepool.**—ROAD MATERIALS AND SEWER PIPES, ETC.—The Corporation invite tenders for the supply of Yorkshire and concrete kerbstone and flags, etc. Specifications, etc., can be obtained upon application at office of Mr. Nelson F. Dennis, A.M.Inst.C.E., Borough Engineer and Surveyor, Borough Engineer's Office.

NOVEMBER 20.—**Dublin.**—STORES.—The Directors of the Great Southern and Western Railway Company invite tenders for the supply of stores for twelve months. Forms of tender can be obtained on payment of 6d. each from the Company's Storekeeper, at the General Stores, Inchicore, Dublin.

NOVEMBER 21.—**Chatham.**—ANNUAL CONTRACTS.—Chatham T.C. invite tenders for the supply of goods and materials during the year ending December 31, 1908. Specifications, etc., can be obtained, and samples seen, on application at the Borough Surveyor's Office, Town Hall, Chatham.

NOVEMBER 22.—**Liverpool.**—STORES.—The Cheshire Lines Committee invite tenders for the supply during the year 1908 of stores and materials. Specifications, etc., can be obtained upon application to Mr. S. Saxon Barton, Stores Superintendent, Cheshire Lines, Warrington, and intending contractors are requested to particularise the stores for which they wish to tender.

NOVEMBER 25.—**Aberdeen.**—STORES.—The Directors of the Great North of Scotland Railway invite tenders for the supply of stores for six or twelve months. Forms of tenders can be obtained from the Stores Superintendent, 80, Guild-street, Aberdeen, on payment of 1s. for each form.

NO DATE.—**Lancashire.**—TOOL-HOUSES, ETC.—Lancashire Education Committee invite tenders for the supply of (1) a number of small wooden tool-houses, with corrugated iron roofs, size 6 ft. by 4 ft., and 6 ft. high to eaves; (2) several sets of garden tools, including wheelbarrows. Samples may be seen at the County Offices (Agricultural Department), and full particulars may be obtained from the Director of Education, County Offices, Preston.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*MANUAL TRAINING INSTRUCTORS	London County Council	100*l.* per annum.....	Nov. 16

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C.	Churchill & Sims	Nov. 13
*200,000 GLAZED STAFFORDSHIRE BRICKS—At Midland Goods Depôt, Euston-road, N.W.	Charles Mandell	Nov. 14
*FREEHOLD OF ALBION TAVERN, ALDERSGATE-STREET—At the Mart	Fox & Bousfield.....	Nov. 20
*BUILDING SITE, OLD KENT-ROAD—At the Mart.....	Field & Sons	do.
*CONTRACTOR'S PLANT AND MATERIALS—At Depôt, nr. Beckton Gas Wks., Barking Creek	Fuller, Horsey, Sons, & Cassell	Nov. 26
*FREEHOLD BUILDING SITE, NEAR OXFORD-CIRCUS—At the Mart	Southon & Robinson	Nov. 29

PATENTS.—*Continued from page 506.*

28,759 of 1906.—M. GRIFFITHS : *Chimney Throats of Open Fireplaces and the like.*

This relates to appliances for preventing the down draught of smoke in chimneys, flues, and the like, and consists in fixing in the chimney throat a division plate in combination with louvred frames.

29,344 of 1906.—H. DRABBLE : *Radiating Gas Stoves.*

This consists in the combination in a radiating gas stove of a closed combustion chamber having a burner or series of burners and a chamber above forming the roof of the combustion chamber or heated by the products of combustion or heated by the direct action of the flame of the burners, from which chamber the air for combustion is delivered by conduits, while the products of combustion pass up through the hollow exterior walls of the stove, and thus further increase the radiation.

29,543 of 1906.—H. WYLER : *Bracket or Support for Pipes.*

This relates to a pipe bracket characterised by two hooks, which are removably attached to a stay by means of a bolt, and are prevented from turning by noses provided on said hooks, said noses resting against abutments provided on each side of the stay.

1,797 of 1907.—S. BURGE : *Driven Wind, Rain and Snow Preventer for Corrugated Iron Roofs.*

This relates to corrugated metal sheets having the upper ends of the valleys bent and reversed into the shape of ridges, the rounds of the ridges facing each other and forming a continuation of the valleys, the connexion being in the form of a bent mitre receding from the valleys to the tops of the ridges, and the fronts of the said ridges being flat or of any other shape which will provide a bent mitre.

5,815 of 1907.—E. GREEN and W. BRINDLEY : *Metal Window Wedge.*

This relates to a metal window wedge made out of a plate, and comprising a body portion and a tongue portion cut and pressed out from the plate and constituting a separate article detached from any part or the window.

6,623 of 1907.—J. F. W. OLTMANNS : *Material for and Process of Manufacturing Building Blocks and the like.*

This relates to a process of forming a slab block or the like of building material having interstices, and consists in forming a binder of plaster of Paris and dextrine or the like, soaking a number of vegetable fibres therein, removing the excess of binder and moulding the fibres by slight pressure.

7,954 of 1907.—V. GRIFFITHS : *Implement for Cleaning, Brushing, or Dusting Windows and Walls, or for other analogous purposes.*

This relates to an implement or device for cleaning windows, and for other analogous purposes, consisting of one or two frames constituted by a combination of transverse and vertical bars combined or not with a covering or backing of sheet metal, one or more of the bars being provided with central loops or eyes to attach them to the wood support or fork-shaped bracket or holder, bent to form an obtuse angle with oppositely diverging arms and pintle ends or a socket attachment adjustably mounted and pivotally connected to a long arm or handle.

10,946 of 1907.—H. J. BERESFORD : *Locks and Latches for Sliding Doors or the like.*

This relates to locks or latches for sliding doors or the like, having a socket part and an engaging part with normally expanding means in the socket part adapted to take into the engaging part, and comprises the combination of a socket engaging part with spring levers having tails bearing on a spring, and a spring plunger operable by a set off from a handle spindle, the holder being arranged and adapted for securing a sliding door.

14,738 of 1907.—A. S. DOUGLAS and A. DOUGLAS : *Drop Doors for Earth and Ash Closets.*

This consists in the combination with an earth closet or like door of means for retaining the door in its raised position by inserting its lower edge in slots in expanded portions of the back ribs between which and the front studs and lugs the door can slide.

17,398 of 1907.—F. BALTZ : *Building Blocks.*

This relates to a building block formed of vertical faces, horizontal panels, and a central panel connecting said horizontal panels projecting beyond the ends of said horizontal panels and terminating to the rear of the ends of the vertical faces.

29,326 of 1906.—G. W. NAYLOR and J. T. NAYLOR : *Stoneware or other Pipe Joints.*

This relates to stoneware or other pipe joints of the type in which two fillets or rows of fillets or internal projections are formed in the socket, and consists in the formation of the outer fillet set back from the outer edge of the socket and the inner fillet clear of the flat inner shoulder of the socket.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

MEETINGS.

FRIDAY, NOVEMBER 8.

Glasgow Architectural Craftsmen's Society.—Professor C. Gourlay, B.Sc., on "The Parthenon and its Reproductions." 8 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. E. Worth on "Scavenging and Disposal of House Refuse." 7 p.m.

MONDAY, NOVEMBER 11.

London Institution.—Mr. F. Hamilton Jackson, R.B.A., on "Romanesque Ornaments," illustrated. 5 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—7 p.m.

Surveyors' Institution.—Opening address by the President, Mr. T. T. Wainwright. 8 p.m.

University of London (South Kensington).—Mr. Banister Fletcher on "The Gothic Architecture of Central Italy." 8 p.m.

TUESDAY, NOVEMBER 12.

Institute of Sanitary Engineers (Students' Lecture).—Mr. J. T. Griffin on "Sewerage and Drainage." 7 p.m.

Institution of Civil Engineers.—Mr. H. T. Ker on "The Extension, Widening, and Strengthening of Folkestone Pier." 8 p.m.

WEDNESDAY, NOVEMBER 13.

Royal Sanitary Institute (Lectures for Sanitary Officers).—7 p.m. Inspection at Harrison & Barber's Knackeryard, Winthrop-street, Whitechapel. 3 p.m.

THURSDAY, NOVEMBER 14.

Architectural Association Camera and Cycling Club.—Mr. H. P. G. Maule on "Cottages and Small Farms." 7.30 p.m.

Royal Sanitary Institute.—Discussion on "The Smoke Problem in Large Towns." Introduced by Dr. Louis C. Parkes and Dr. H. A. Des Vaeux. Chair to be taken by Sir William Richmond, K.C.B., R.A. 8 p.m.

Institution of Electrical Engineers.—8 p.m.

Carpenters' Company, Carpenters' Hall, London-wall (Lectures on Sanitary Building Construction).—Dr. A. Wynter Blyth on "Plumbers' Work," II. 7.30 p.m.

FRIDAY, NOVEMBER 15.

The Architectural Association.—Mr. J. S. Gibson and Mr. B. J. Greenwood on "The Relations between the Architect and the Builder." 7.30 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—7 p.m.

Institution of Mechanical Engineers.—8 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

October 14.—By DREWEATT & WATSON (at Newbury).	
Newbury, Berks.—1 and 2, Donnington Villas, f., y. and e.r. 64*l.*	£930
Highclere, Hants.—Accommodation land, 2 a. 2 r. 36 p., f., y.r. 6*l.*	155
East Woodley.—Boil-hill, two cottages, f., y.r. 10*l.* 8s.....	160
October 18.—By THOMSON & WOOD (at Cleethorpes).	
Cleethorpes, Lincoln.—Mill-rd., freehold building land, 9,948 sq. yds.....	2,217
October 25.—By POOLER & DAVIES (at Newport).	
High Offley, Salop.—High Offley, Manor Farm, 189 a. 0 r. 22 p., f.....	6,000
Eccleshall, Salop.—Pershall Farm, 77 a. 1 r. 26 p., and allotment gdns., 8 a. f.	3,000
By HARRY BALL (at Bedford).	
Bedford.—29 and 31, George-st., f., y. and e.r. 37*l.*	465
15 and 17, Gwyn-st. (s.), and 32 and 34, Melbourne-st., f., y. and w.r. 59*l.* 3s.....	660
October 26.—By THORNBORROW & CO. (at Appleby).	
Long Marton, Westmorland.—House and enclosures of land, 55 a. 0 r. 38 p., f.	1 170
October 28.—By FRED. COPPING & CO.	
Highbury.—268, St. Paul's-rd., u t. 41 yrs., g.r. 10*l.*, y.r. 75*l.* 8s.	440
By ELLIOTT, SON, & BOYTON.	
Regent Street.—43, Warwick-st., u.t. 12 yrs., g.r. 150*l.*, e.r. 300*l.*	1,200
By MONEY & JOHNSTON.	
Norwood.—28, Palace-sq., u.t. 50 yrs., g.r. 5*l.* 8s. 4d., e.r. 36*l.*.....	250
By THORNBORROW & CO. (at Keswick).	
Crosthwaite, Cumberland.—Greta Hall, 12 a., f.	6,200
By DREWEATT & WATSON (at Newbury).	
Enbourne, Berks.—Cottage, 6 acres, u.t. 870 yrs., quit rent 10s., y.r. 27*l.*.....	500
Newbury, Berks.—Wash Common, an enclosure of land, ¾ acre, f., y.r. 4*l.*	185
October 29.—By DEBENHAM, TEWSON, RICHARDSON & CO.	
Hook, Surrey.—Hook-rd., a freehold plot.....	200
By HAMPTON & SONS.	
Westminster.—The Broadway, Queen Anne's Chambers, u.t. 990 yrs., g.r. 2,837*l.* 14s. 10d., e. and y.r. 25,000*l.*	143,000
Old Stratford, Warwick.—Rhine Hill Estate, 102 acres, f.	8.7 0
By MAY & PHILPOT.	
Brixton.—12, Appach-rd., u.t. 64 yrs., g.r. 8*l.*, y.r. 37*l.*	290
14, Beechdale-rd., u.t. 88 yrs., g.r. 7*l.*, p.....	400
36, Vicary-st., b-h., u.t. 47¾ yrs., g.r. 4*l.*, y.r. 24*l.*	390
24, 26, and 28, Cornwall-rd., u.t. 41¾ yrs., g.r. 12*l.* 18s., w.r. 93*l.* 12s.	600
Streatham.—22 and 24, Arragon-rd., u.t. 95 yrs., g.r. 15*l.*, y.r. 74*l.*	620
By FREDERICK WARMAN.	
Finchley.—1, Holden-av., u.t. 71 yrs., g.r. 15*l.*, y.r. 65*l.*	460
Wood Green.—1a, Warberry-rd. (s.), u.t 73 yrs., g.r. 8*l.*, y.r. 34*l.*	285
1, 2, and 4, Warberry-rd., u.t. 73 yrs., g.r. 12*l.*, w.r. 62*l.* 8s.....	220
6 to 24 (even), Warberry-rd., u.t. 73 yrs., g.r. 40*l.*, w.r. 208*l.*	695
5 to 15 (odd), Warberry-rd., u.t. 73 yrs., g.r. 24*l.*, w.r. 124*l.* 16s.	430
13 to 53 (odd), Ringslade-rd., u.t. 73 yrs., g.r. 84*l.*, w.r. 436*l.* 16s.	1,755
Hornsey.—6, Redston-rd., u.t. 98 yrs., g.r. 8*l.*, y.r. 38*l.*	360
Highbury.—39, Riversdale-rd., u.t. 63 yrs., g.r. 7*l.*, y.r. 36*l.*	270

By MONTAGUE HARRIS (at Abergavenny).

Ewias Harold, Hereford.—Elm Green Farm, 128 acres, f.	£4,100
Longtown, Hereford.—Upper Brooks, f.	115
Coed Farm, 10 acres, f.	205

By ALFRED SPAIN & SON (at Gravesend).

Gravesend.—Old-rd, West, Portland Lodge, f., e.r. 50*l.*	680
1, and 2, Singlewell-rd., f., e.r. 48*l.*	510
37, and 38, Nine Elms-gr., f., w.r. 33*l.* 16s.	200
9, Peacock-st., f., w.r. 23*l.* 8s.	210
Southfleet.—Red-st., freehold shop, w.r. 20*l.* 16s.	220
Fawkham.—1 to 8, Railway Cottages, f., w.r. 101*l.* 8s.	820
Shorne.—Seven Freehold Cottages, w.r. 55*l.* 16s.	500
1, 2, and 3, Smith's Cottages, f., w.r. 28*l.* 3s.	200
Maidstone.—70, Union-st., f., w.r. 22*l.* 2s.	200

By PEAT & HOLDSWORTH (at Reigate).

Reigate, Surrey.—43, Doods-rd., f., e.r. 28*l.*	415

October 30.—By BOYTON, SONS, & TREVOR.

High Barnet.—33 and 35, Carnarvon-rd., u.t. 76 yrs., g.r. 10*l.*, y.r. 47*l.*	305
Hornsey.—270, Wightman-rd., f., y.r. 40*l.*; and 272, Wightman-rd., u.t. 75 yrs., g.r. 12*l.*, y.r. 60*l.*	880
39, Watson-st., u.t. 55 yrs., g.r. 4*l.* 10s., w.r. 31*l.* 4s.	100
Stoke Newington.—13 to 21, Martaban-rd., u.t. 73 yrs., g.r. 25*l.*, y.r. 156*l.*	1,105
Lewisham.—Morden-gr., Smith's-villa, u.t. 55 yrs., g.r. 5*l.*, w.r. 49*l.* 8s.	255
Harrow.—Hide-rd., f.g. rents 48*l.*, reversion in 98 yrs.	1,105

By DYER, SON, & HIBTON.

Blackheath.—The Dacre-pk. Baptist Chapel with land adjoining, u.t. 5 yrs., g.r. 15*l.*, with reversion	800
Lee.—Kingswood-pl., "The Dacre Arms" p.h., u.t. 5 yrs., g.r. 14*l.*, with reversion	650
1 to 10, Kingwood-pl., u.t. 5 yrs., g.r. 40*l.*, with reversion	1,800
Lewisham Park.—Carlton Lodge, u.t. 62½ yrs., g.r. 30*l.*, p.	950

By PERCIVAL HODSON.

Hornsey.—2, Corbyn-st., u.t. 63 yrs., g.r. 6*l.*, e.r. 34*l.*	300

By FRANK JOLLY & JAMES.

Clapton.—40, Newick-rd., u.t. 72 yrs., g.r. 6*l.* 10s., e.r. 45*l.*	420

By P. W. TALBOT & CO.

Chelsea.—Sydney-st., f.g.r. 12*l.*, reversion in 18 yrs.	830
Notting Hill.—Princes-rd., f.g.r. 40*l.*, reversion in 33 yrs.	1,505
Holloway Road.—Peppercorn g.r., u.t. 36 yrs.	290
Finsbury Park.—Rock-st., f.g.r. 12*l.*, reversion in 64 yrs.	415

October 31.—By BALCH & BALCH.

Holloway.—9 and 11, Poynings-rd., u.t. 63 yrs., g.r. 10*l.*, p. and y.r. 32*l.*	590
Tufnell Park.—150, Tufnell Park-rd., u.t. 61 yrs., g.r. 9*l.*, p.	400
Kentish Town.—28, Bartholomew-rd., u.t. 51 yrs., g.r. 8*l.*, p.	425

By COCKETT & HENDERSON.

Fulham.—Kelvedon-rd., f.g.r. 25*l.* 4s., reversion in 86 yrs.	510

By LEOPOLD FARMER & SONS.

St. John's Wood.—78, Carlton-hill, u.t. 35 yrs., g.r. 15*l.*, e.r. 120*l.*	1,050
72, Abbey-rd., u.t. 30 yrs., g.r. 17*l.*, e.r. 80*l.*	200
Harrow-road.—816 and 818, Harrow-rd., freehold site, 4,000 ft.	800

By HAMPTON & SONS.

Wimbledon.—Crescent-rd., Bertwood, f., y.r. 100*l.*	1,345

By NEWBON, SHEPHARD, & EDWARDS.

Islington.—163, Downham-rd., u.t. 33 yrs., g.r. 5*l.*, y.r. 36*l.*	230
Bowes Park.—36, Whittington-rd., f., y.r. 36*l.*	430
Finsbury Park.—35 and 37, Palmerston-rd., u.t. 58 yrs., g.r. 1*l.*, w.r. 81*l.* 18s.	400

By STIMSON & SONS.

Hackney.—157, Victoria-pk.-rd., u.t. 43¾ yrs., g.r. 7*l.*, e.r. 36*l.*	205
Battersea.—89 and 91, Livingstone-rd., u.t. 56¾ yrs., g.r. 11*l.*, w.r. 67*l.* 12s.	150
Streatham.—45 and 47, Angles-rd., u.t. 51½ yrs., g.r. 13*l.* 5s., y.r. 45*l.* and p.	650
Peckham.—211 to 221 (odd), Cator-street, u.t. 7 yrs., g.r. 5*l.*, w.r. 126*l.* 2s.	165
Kennington Park.—98, St Mark's-rd, and 135, Warnam-st., f., y. and w.r. 81*l.* 4s.	1,100
85, to 97, (odd) St. Mark's-rd., and l.g.r. 20*l.*, u.t. 67 yrs., g.r. 80*l.*, w.r. 191*l.* 2s	630
Norbition, Surrey.—Cambridge-rd., f.g.r. 16*l.*, and l.g.r. 13*l.*, reversion in 57½ yrs.	500

By WM. FOWLER & BEWLAY (at Birmingham).

Rowington, Warwick.—Weston Hall Farm, 100 a. 3 r. 38 p., f.	3,800

November 1.—By C. H. BROWN

Pimlico.—19, Claverton-st., u.t. 26 yrs., g.r. 10*l.* e.r. 70*l.*	410
Westminster.—31, 32, and 33, Medway-st., f., w.r. 124*l.* 16s.	1,610

By PRICE, ARROW & TAYLOR.

Clapham.—24, Larkhall Rise, u.t. 15 yrs., g.r. 8*l.*, p.	120

Contractions used in this list.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, and Canada 21s. 8d. (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

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PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.	
Hard Stocks	1	7	0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1	6	0	" " "
Picked Stocks for Facings	2	10	0	" delivered.
Flettons	1	6	0	" at railway depôt.
Red Wire Cuts	1	14	0	" " "
Best Fareham Red	3	12	0	" " "
Best Red Pressed Ruabon Facing	5	0	0	" " "
Best Blue Pressed Staffordshire	3	15	0	" " "
Do. Bullnose	4	0	0	" " "
Best Stourbridge Fire Bricks	3	14	0	" " "

GLAZED BRICKS.

Best White and Ivory Glazed Stretchers	12	0	0	" " "
Headers	11	0	0	" " "
Quoins, Bullnose, and Flats	16	0	0	" " "
Double Stretchers	19	0	0	" " "
Double Headers	16	0	0	" " "
One Side and two Ends	19	0	0	" " "
Two Sides and one End	20	0	0	" " "
Splays, Chamferred, Squints	20	0	0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	" " "
Quoins, Bullnose, and Flats	14	0	0	" " "
Double Stretchers	15	0	0	" " "
Double Headers	14	0	0	" " "
One Side and two Ends	15	0	0	" " "
Two Sides and one End	15	0	0	" " "
Splays, Chamferred, Squints	14	0	0	" " "
Second Quality White and Dipped Salt Glazed	2	0	0	" less than best.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	6	" "
Best Portland Cement	30	0	per ton, "
Best Ground Blue Lias Lime	19	6	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks	27s. 0d. per ton at rly. dpt.

STONE.

	s.	d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	" "
PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1	" "
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	2½	" "

	s.	d.	
Aacaster in blocks	1	10	per ft. cube, deld. rly. depôt.
Beer "	1	6	" "
Greenshill "	1	10	" "
Darley Dale in blocks	2	4	" "
Red Corsehill "	2	2	" "
Closeburn Red Freestone	2	0	" "
Red Mansfield "	2	4	" "

YORK STONE—*Robin Hood Quality*

Scappled random blocks	2	10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super., "
6 in. rubbed two sides ditto, ditto	2	6	" "
3 in. sawn two sides slabs (random sizes)	0	11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	" "
1½ in. to 2 in. ditto, ditto	0	6	" "

HARD YORK—

Scappled random blocks	3	0	per ft. cube "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super. "
6 in. rubbed two sides ditto	3	0	" "

STONE (*continued*).

HARD YORK (*contd.*)—	s.	d.	
3 in. sawn two sides slabs (random sizes)	1	2	per ft. super, deld. rly. depôt
2 in. self-faced random flags	0	5	" "

SLATES.

In. In.	£	s.	d.	
20×10 best blue Bangor	13	2	6	per 1000 of 1200 at r. d.
20×12 " "	13	17	6	" "
20×10 first quality "	13	0	0	" "
20×12 " "	13	15	0	" "
16×8 " "	7	5	0	" "
20×10 best blue Portmadoc	12	12	6	" "
16×8 " "	6	12	6	" "
20×10 best Eureka unfading green	15	17	6	" "
20×1 " "	18	7	6	" "
18×10 " "	13	5	0	" "
16×8 " "	10	5	0	" "
20×10 permanent green	11	12	6	" "
18×10 " "	9	12	6	" "
16×8 " "	6	12	6	" "

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1000 at rly. depôt.
Hip and Valley tiles	3	7	per doz. "
Best Broseley tiles	50	0	per 1000 "
Do. Ornamental tiles	52	6	" "
Hip and Valley tiles	4	0	per doz. "
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 "
Do. Ornamental do.	60	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	0	" "
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 "
Do. Ornamental do.	54	6	" "
Hip tiles	4	1	per doz. "
Valley tiles	3	8	" "
Best "Rosemary" brand plain tiles	48	0	per 1000 "
Best Ornamental tiles	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	8	" "
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 "
Do. pressed	47	6	" "
Do. Ornamental do.	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	6	" "

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	... 15	0	0
Deals: best 3 by 9	13	0	0	... 14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	... 12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best.		
Battens: seconds	0	10	0	" "		
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	... 10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	... 9	10	0
Foreign Sawn Boards—1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	"		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 4	10	0	... 5	0	0
Seconds	4	0	0	... 4	10	0
Small timber (8 in. to 10 in.)	3	12	6	... 3	15	0
Small timber (6 in. to 8 in.)	3	0	0	... 3	10	0
Swedish balks	2	10	0	... 3	0	0
Pitch-pine timber (30 ft. average)	4	0	0	... 4	15	0

JOINERS' WOOD.	At per standard. £	s.	d.	£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	... 25	0	0
3 in. by 9 in.	22	0	0	.. 23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	... 18	0	0
Second yellow deals, 3 in. by 1 in.	18	10	0	... 20	0	0
" " 3 in. by 9 in.	17	10	0	... 19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	... 14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	... 15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	... 12	0	0
Petersburg first yellow deals, 3 in. by 11 in.	21	0	0	... 23	10	0
Do. 3 in. by 9 in.	18	0	0	... 19	10	0
Battens	13	10	0	... 15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	... 17	0	0
Do. 3 in. by 9 in.	14	10	0	... 16	0	0
Battens	11	0	0	... 12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	... 14	0	0
Do. 3 in. by 9 in.	12	10	0	... 14	0	0
Battens	10	0	0	... 11	0	0
White Sea and Petersburg—First white deals, 3 in. by 11 in.	14	10	0	... 15	10	0
" " 3 in. by 9 in.	13	10	0	... 14	10	0
Battens	11	0	0	... 12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	... 14	10	0
" " 3 in. by 9 in.	12	10	0	... 13	10	0
" " battens	10	0	0	... 11	0	0
Pitch-pine: deals	18	8	0	... 21	0	0
Under 2 in. thick extra	0	10	0	... 1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.		
Oddments	32	0	0	"		
Seconds, regular sizes	33	0	0	"		
Yellow Pine oddments	28	0	0	"		
Kauri Pine—Planks, per ft. cube	0	3	6	... 0	5	0
Danzig and Stettin Oak Logs—Large, per ft. cube	0	3	0	... 0	3	6
Small " "	0	2	6	... 0	2	9
Wainscot Oak Logs, per ft. cube	0	5	6	... 0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	... 0	0	9½
¾ in. do. do	0	0	7	...	—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	... 0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	... 0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	... 0	1	0
Teak, per load	17	0	0	... 22	0	0
American Whitewood Planks, per ft. cube	0	4	0	... 0	5	0

WOOD (*continued*).

JOINERS' WOOD (*continued*)—

Prepared Flooring, etc.—	Per square. £ s. d.		£ s. d.
1 in. by 7 in. yellow, planed and shot	0 13 6	...	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	...	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	...	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	...	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	...	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	...	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	...	0 13 6
1 in. by 7 in. " "	0 14 0	...	0 18 0
¾ in. by 7 in. white " "	0 10 0	...	0 11 6
1 in. by 7 in. " " "	0 12 9	...	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.		£ s. d.
Rolled Steel Joists, ordinary sections	7 15 0	...	8 5 0
Compound Girders, ordinary sections	10 0 0	...	11 0 0
Steel Compound Stanchions	12 10 0	...	13 10 0
Angles, Tees, and Channels, ordinary sections	9 15 0	...	10 15 0
Flitch Plates	9 15 0	...	10 15 0
Cast Iron Columns and Stanchions including ordinary patterns	8 0 0	...	9 0 0

METALS.

	Per ton, in London. £ s. d.		£ s. d.
IRON—			
Common Bars	8 10 0	...	9 0 0
Staffordshire Crown Bars, good merchant quality	9 5 0	...	9 15 0
Staffordshire "Marked Bars"	11 0 0	...	—
Mild Steel Bars	9 10 0	...	9 15 0
Hoop Iron, basis price	9 15 0	...	10 0 0
" " Galvanised	17 10 0	...	—

(*And upwards, according to size and gauge.)

Sheet Iron Black—			
Ordinary sizes to 20 g.	10 0 0	...	—
" " 24 g.	11 0 0	...	—
" " 26 g.	12 10 0	...	—
Sheet Iron, Galvanised, flat, ordinary quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16 0 0	...	—
Ordinary sizes to 22 g. and 24 g.	16 10 0	...	—
" " 26 g.	17 0 0	...	—
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	19 0 0	...	—
" " 22 g. and 24 g.	19 10 0	...	—
" " 26 g.	21 0 0	...	—
Galvanised Corrugated Sheets—			
Ordinary sizes 6 ft. to 8 ft. 20 g.	16 0 0	...	—
" " 22 g. and 24 g.	16 5 0	...	—
" " 26 g.	17 10 0	...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13 0 0	...	—
Best Soft Steel Sheets, 22 g. & 24 g.	14 0 0	...	—
" " " 26 g.	16 0 0	...	—
Cut Nails, 3 in. to 6 in.	10 15 0	...	11 5 0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £ s. d.		£ s. d.
LEAD—Sheet, English, 3lb. and up.	21 10 0	...	—
Pipe in coils	22 0 0	...	—
Soil pipe	24 10 0	...	—
Compo pipe	25 10 0	...	—
ZINC—Sheet—			
Vieille Montagne ...ton	29 10 0	...	—
Silesian	29 5 0	...	—
COPPER—			
Strong Sheet ...per lb.	0 1 4	...	—
Thin " "	0 1 5	...	—
Copper nails "	0 1 3	...	—
BRASS—			
Strong Sheet "	0 1 2	...	—
Thin "	0 1 3	...	—
TIN—English Ingots "	0 1 6	...	—
SOLDER—Plumbers' "	0 0 9	...	—
Tinmen's "	0 0 11	...	—
Blowpipe "	0 1 1	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d. per ft. delivered.
" fourths	1⅞d. " "
21 oz. thirds	3⅛d. " "
" fourths	2⅜d. " "
26 oz. thirds	4¼d. " "
" fourths	3¼d. " "
32 oz. thirds	5d. " "
" fourths	4¼d. " "
Fluted Sheet, 15 oz.	3¼d. " "
" 21 oz.	4¼d. " "

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

¼ Hartley's	2¼d. per ft. delivered.
¼ "	2½d. " "
¼ "	3d. " "
Figured and Oxford Rolled	
"Oceanic" Glass, white ...	4¼d. " "
Do. " tinted ...	5¼d. " "

OILS, &c.

		£ s. d
Raw Linseed Oil in pipes	per gallon	0 2
" " " in barrels	"	⅜ 3
" " " in drums	"	0 2 4
Boiled " in pipes	"	0 2 5
" " " in barrels	"	0 2 4
" " " in drums	"	0 2 5
Turpentine in barrels	"	0 3
" in drums	"	0 3 4
Genuine Ground English White Lead	per ton	26 10 0
Red Lead, Dry	"	25 10 0
Best Linseed Oil Putty	per cwt.	0 7 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

*** Denotes *accepted.* † Denotes *provisionally accepted***

BERWICK-ON-TWEED.—For painting work in connexion with new Council school, Spittal, for the Education Authority. Messrs. Gray & Boyd, Architects, 2 Ivy-place, Berwick:—Quantities by Messrs. Alex. Hay & Co., 44, Castle-street, Edinburgh:—

Hylton & Son
T. Gladstone
G. Gilchrist & Son
J. Grow
R. Taylor, Berwick*
} Schedule of Prices.

BETHESDA.—For painting, decorating, ventilating, and general repairs to Bethesda Independent Chapel, Bethesda. Messrs. R. Davies & Son, architects, Bangor:—

J. Hornby	£643 0 0	E. Parry & Son	£470 14 0
Roberts & Williams	615 10 0	R. Jones & Sons	468 10 0
W. Roberts	524 0 0	J. D. Pritchard	462 10 0
E. Jones	516 19 3	R.D.&H.Hughes	457 0 0
R. & J. Williams	476 0 0	W. H. Lewis, Bethesda*	456 0 0

BRIDLINGTON.—For erecting detached residence, Cardigan-road, for Mrs. E. L. Davis. Mr. J. Earnshaw, architect, Carlton House, Bridlington:—

J. Sawdon, Bridlington* ... £532

CALSTOCK.—For the construction of a reservoir, for excavation for mains, and for other works, St. Ann's Chapel, for the Rural District Council. Mr. H. F. Bellamy, engineer, Athenæum-chambers, Plymouth:—

J. Cockerell	£844 13 11	Steer & Pearce	£481 0 0
J. Paynter	608 0 0	N. E. Bennett	375 0 0
Skinner & Co.	573 14 0	T. Shaddock, Plymouth*	358 9 11
J. Shaddock	501 3 6		
Snell & Alderman	487 7 0		

CHIDDINGFOLD.—For the erection of a pair of villas at Chiddingfold, Surrey, for Mr. A. Messinger. Messrs. Hodgson & Symmonds, architects and quantity surveyors, 8, Testard-road, Guildford:—

F. Milton & Son	£1,047 10 0	Bouncer & Co.	£1,011 9 10
H. Ingram & Sons	1,044 16 8	E. Enticknap & Son	1,011 4 0
D. Fry	1,044 10 0	Drowley & Co.	1,011 0 0
A. Bookham	1,022 16 1	W. Mercer, Guildford*	997 13 0
R. Smith	1,021 0 0		

For Well.

F. Milton & Son	£27 0	R. Smith	£20 0
Bouncer & Co.	25 10	D. Fry*	19 0
A. White	21 10		

CHURWELL.—Accepted for alterations and extensions to warehouse and offices at Millshaw Leather Works, for Messrs. W. L. Ingle, Ltd. Messrs. T. A. Buttery & S. B. Birds, architects, Queen-street, Morley, and at Leeds:—

Masons: Blakeley & Co., Upper Wortley, Leeds ... £720 0 0
Joiner: A. Furness, Morley ... 558 0 0
Plasterers: J. Iredale & Son, Birstall ... 31 7 8
Slaters: J. Atkinson & Son, Ltd., Leeds ... 60 10 0

CULMSTOCK (Devon).—For road-widening works, for the Rural District Council. Mr. W. Beadon, Surveyor, Woodgate, Wellington:—

Section 1.
J. Frost, Burlescombe* ... £65 0
Section 2 *and* 3.
J. Trebble, Burlescombe* ... 210 10
Section 4.
W. Lowman, Culmstock* ... 140 0

DUNDEE.—For steel roof of Blackness Library, for the Town Council. Mr. J. Thomson, City Architect, 91, Commercial street, Dundee:—

R. Moreland & Son, Ltd.	£285 0	J. Burdon & Sons	£110 0
Lambourne & Co.	219 12	G. B. Smith & Co.	100 10
D. G. Somerville & Co.	180 0	Bryden & Middleton, Merlin Iron Works, Glasgow*	98 0
E.F. Blakeley & Co.	167 10	A. J. Main & Co., Ltd.	93 0
W. Baird & Son	150 0	Glasgow Steel Roofing Co.	74 10
F. Braby & Co., Ltd.	142 0	Ralston, Goodwin, & Co.	63
Beath & Keay	138 0		
Peirson & Co.	125 0		
P. & W. Maclellan, Ltd.	120 0		

EDGBASTON.—For erecting St. Paul's High School for Catholic Girls, Vernon-road, Edgbaston, Birmingham, for the Rev. Mother-General and Community of St. Paul's Convent, Selly Park, Birmingham. Mr. H. T. Sandy, architect, 22, Greengate, Stafford. Quantities by the Architect:—

	Amount.	Time.
Waring, White Building Co.	£12,282	12 months
Stephens, Bastow, & Co.	12,169	12 months
Foster and Dickson	11,976	Oct. 30, 1908
W. J. Whittall & Son	11,800	To be agreed
W. Sapcote & Sons	11,777	Sept. 30, 1908
J. C. Kellett & Son	11,770	(Not stated)
W. Bishop	11,750	12 months
C. Hope	11,697	To be agreed
J. Smith & Sons	11,689	To be agreed
H. Lovatt, Ltd.	11,412	April 30, 1908
S. Whitehouse & Sons, Ltd.	11,385	Oct 31, 1908
W. H. Gibbs	11,350	July 31
W. & J. Webb	11,343	12 months
T. Elvins	11,333	Oct. 31, 1908
Lowe & Sons	11,296	July 31, 1908
H. Willcock & Co.	11,288	Oct., 1908
E. Garfield	11,254	Dec. 31, 1908
T. Rowbotham	11,156	Sept., 1908
W. Hopkins	10,990	Sept. 30, 1908
R. Fenwick, Ltd.	10,959	Nov., 1908
J. Barnsley & Sons	10,888	Aug. 31, 1908
W. Moss & Sons	10,845	June 30, 1908
W. Pattison & Sons, Ltd.	10,700	Sept. 11, 1908
J. A. Turton	10,595	June 16, 1908
J. Webb, Handsworth*	10,259	July 30, 1908
E. Crowder	10,125	June 25, 1908

FLEET (Hants).—For making-up, etc., Upper-street and Victoria-road, for the Urban District Council:—

	Upper-street.		Victoria-road.
W. Norris	——		£903 10 10
T. Free & Son	£1,364 19 4		901 4 7
Wort & Way	1,285 11 4		956 12 9
S. Kavanagh & Co.	1,200 9 1		942 3 2
Middlesex Contract Co.	1,094 0 0		706 0 0
J. P. Wilson & Co.	1,042 18 2		790 5 10
J. Douglas	1,019 0 0		748 0 0
T. Turner	989 18 4		700 18 5
Ripley, Strong, & Co.	871 9 4		677 18 9
W. Hoar	816 18 1		645 12 3½
J. Hill, Fleet*	813 17 11		614 0 3

FORRES.—For erecting new bridge over the Mosset Burn, at the west end of Bridge-street, and for walls and lavatory, for the Town Council. Mr. P. Fulton, architect, Forres:—

R. Murray & Son, Forres* £2,252 19 5 } Schedule of prices used.

GREAT BURSTEAD.—For repairs to roof and interior of church, for the Rev. J. Denton Hart. Mr. R. G. M. Layland, engineer:—

H. Ridger	£203 11 0	J. Avey	£125 10 0
Moth	182 17 0	Harris Bros.	121 0 0
J. Simmons	169 0 0	F. Fordham, Billericay*	105 15 0
W. de C. Hudson	161 0 0	J. W. Jarvis	108 0 0
E. MacEntee	145 0 0	J. W. Burtwell	96 10 0
Choat & Sons	144 0 0	Pavitt & Sons	95 10 0
W. Woodward	126 0 0		

GUILDFORD.—For new technical, institute, for the Surrey Education Committee. Messrs. Jarvis and Richards, Architects, 36, Victoria-street, S.W.:—

W. Wallis	£11,249	Wakeham Bros.	£10,391
S. Salter	11,219	Stephens, Bastow, & Co.	10,319
Cæsar Bros.	11,719	D. Fry	11,050	Martin, Wells, & Co.	10,315
Drowley & Co.	10,991	Rowland Bros.	10,299
Haslemere Builders	10,920	Jarman, Dawes, & Co.	10,188
Potter Bros.	10,900	Mitchell Bros.	10,700	S. E. Moss, & Co.	10,152
J. & M. Patrick	10,699	Allen, Fairhead, & Son.	10,146
J. Chessum & Sons	10,697	T. J. Hawkins & Co.	10,697	E. J. Saunders	10,142
B. E. Nightingale	10,600	Higgs & Outhwaite	10,025
McCarthy E. Fitt	10,578	F. & G. Foster	9,917
Higlett & Hammond	10,497	W. Lawrence, & Son Waltham Cross*	9,884
Cropley Bros.	10,470	H. & E. Harris†	8,560
C. Wall, Ltd.	10,429	Tribe & Robinson	10,400

† Withdrawn.

HAM.—For erecting a board-room and stable and cart-shed, for the Urban District Council. Mr. H. J. Turner, Surveyor, Malthouse Cottage, Ham Common:—

Abbot & Charlton	£679 0 0	W. Richardson	£458 0 0
Spencer & Harris	655 0 0	F. Hawkey	450 0 0
W. Rice & Sons	519 0 0	McDonald Bros.	450 0 0
H. J. Budd	495 10 0	J. Christie	443 0 0
Roberson, Ltd.	495 0 0	F. Smith & Co.	437 0 0
W. H. Earland	495 0 0	T. C. Collins	432 10 0
Eldridge & Sons	492 0 0	J. S. Selway	432 0 0
Jarman, Daws, & Co.	489 0 0	T. Bendon Ltd.	419 0 0
Sansom & Bishop	470 0 0	F. Hidden	418 0 0
A. Lawrences	467 0 0	C. E. Sims, Ham Common*	398 0 0

HORNSEA.—For erecting a ladies' lavatory and cloak-room, for the Urban District Council. Mr. W. E. Warburton, Surveyor, Public Rooms, Hornsea:—

H. Beall & Son	£306 6 9	H. & W. K. Barr, Hornsea*	£246 10
J. Carr	297 17 0		

LAMBOURN.—For new bridge works, for Berkshire County Council. Mr. J. Fred Hawkins, County Surveyor, Reading:—

	Building, etc.		Steelwork.
H. W. Godwin	£428 0 0		——
Chick Harden & Co., Ltd.	395 0 0		——
Hammond & Co.	314 12 2½		£247 4 9
W. A. Wheeler & Co.	310 14 6		319 10 0
G. H. Tucker	297 0 0		——
W. T. Adams	283 5 10		252 5 9
Brain & Son	269 15 9		——
J. Ellis	267 10 0		240 16 0
J. Edwardes & Son	221 5 6		375 0 0
Langley & Johnson	217 13 0*		197 0 0*
J. Westwood & Co., Ltd.	——		232 18 2
Needham & Lowe	——		270 13 3
A. D. Dawnay & Sons	——		240 0 0
A. Findlay & Co.	——		255 0 0
Lambourne & Co.	——		275 0 0

LONDON.—For wiring and fitting for electric lighting, Holloway car-shed, and Holloway, Hackney, and Clapton sub-stations, for the London County Council:—

Lacy & Co. ..	£3,992 17 9	Pinching & Walton, Cannon-street, E.C.*	£2,374 13 1
Revey, Phillips, & Co.	2,754 13 0		
W. G. Cannon & Sons, Ltd.	2,741 2 11		

LONDON.—For supply of materials, Dulwich, Finsbury, and Victoria Parks, for the London County Council:—

Dulwich Park.

	s. d.		s. d.
J. Harvey	8 6	J. Weston & Sons ..	6 4
G. F. Ward.....	6 6	P. Baker	6 0
J. Guyatt	6 5	B. Martin*	5 10

Finsbury Park.

E. H. Jackson & Co., Ltd.	7 3	J. E. Clark & Co. (informal)	6 8
J. Abrahams*.....	7 3		

Victoria Park.

J. Weston & Sons ..	6 6	S. West, Ltd.	6 0
J. Toms & Son	6 6	Smeed, Dean, & Co., Ltd.*	5 5
W. Skipp.....	6 3		

LONDON.—For fitting-up shop, Chadworth-buildings, St. Luke, for the London County Council:—

Spreckley & Co., Ltd.	£137 10 0	Clancy & Slater	£94 10 0
S. Haskins & Bros.....	112 0 0	F. Sage & Co. (1905), Ltd...	82 10 0
C. Wall, Ltd. ..	103 0 0	W. H. Lascelles & Co., Bunhill-row, E.C.* ..	69 0 0

LONDON.—For erection of cottage hospital, Park-road, Hornsey, N. Mr. George Lethbridge, F.R.I.B.A., 7, Drapers-gardens, E.C.:—

Lidstone	£4,495	The General Building Co.	£4,042
Jarvis & Son.....	4,370	Craig & Shaw	3,993
Carmichael	4,195	McCormick & Son..	3,987
Dove Bros.	4,135	W. Lawrence & Son	3,838
Thompson & Beveredge	4,089	Dearing & Son	3,769
Higgs	4,042	Mattock & Parsons. 165, Gray's Inn-road, W.C.*	3,765
Mattock Bros.	4,047		

LONDON.—For urinal in Regency-place, for Westminster City Council:—

B. Finch & Co., Ltd.	£159	W. E. Farrer	£135
G. Jennings, Ltd. ..	151	Doulton & Co.*	134

PLYMOUTH.—For fitting up hot-water apparatus at the workhouse, for the Guardians. Messrs. Thornely & Rooke, architects, 11, The Crescent, Plymouth:—

Dargue, Griffiths, & Co., Ltd.....	£1,229 0	D. Sale.....	£810 0
G. N. Haden & Sons	997 0	E. H. Cook	750 0
R. Alger & Sons	899 10	W. T. Hocking, Saltash-street, Plymouth*	746 10
T. E. Deans	896 6		

[These prices are for Estimate No. 1 for the infirmary now building. New contracts will be issued immediately (through Messrs. Thornely & Rooke, architects, Plymouth) for hot-water apparatus and heating installation for the main block of the workhouse now rebuilding after the recent fire.]

PONTEFRACT.—For alterations to the board room and offices at the Union Workhouse, for the Guardians. Mr. Arthur Hartley, architect, Castleford. Quantities by architect:—

T. G Wright & Son	£596 8 1½	Walker & Ward.....	£517 2 7
Gallaher Bros.	586 13 3	D. Jackson, Pontefract*	512 18 7
Gelder Bros. & Woodcock	541 15 11		

PONTYPRIDD.—For erecting two cottages at Pantygraigwen, for the Great Western Colliery Company. Messrs. A. O. Evans, Williams, & Evans, architects, Pontypridd:—

Niblett & Davies ..	£431	T. Jones, Trehafod, near Porth, Glam.*	£340
E. Jones	370		

PORTSMOUTH.—For two new infirmary blocks and a maternity block, for the Workhouse Infirmary extension. Messrs. Rake & Cogswell, architects, Portsmouth. Quantities by Mr. C. W. Ball, Southsea:—

T. Edge.....	£16,965 0 0	H. Jones	£14,845 0 0
Lascelles & Co.	16,850 0 0	W. Wallis	14,811 6 0
Learmouth ..	15,830 0 0	Light & Son ..	14,742 0 0
Spriging.....	15,500 0 0	F. Privett	14,233 0 0
J. Tanner	15,270 0 0	E. J. Watteridge	13,787 2 1
A. J. Colburn	15,197 0 0	M. Coltherup..	13,608 0 0
Coles	15,187 1 8	F. Corke, Frodington-road, Southsea* ..	13,330 0 0
Minter	15,186 0 0		
W. E. Blake ..	14,985 0 0		
Crockerell	14,946 0 0		

SHARLSTON.—For constructing a main pipe sewer 370 yds. in length in the Wakefield and Weeland-road, for the Wakefield Rural District Council. Mr. F. Massie, M.Inst.C.E., Wakefield:—

Wilson Bros., Park-lane, Wakefield*.. £146 2 0

[Five firms sent in tenders.]

SPENNYMOOR.—For road-making, etc.; Fenwick-street, Grainger-street, and Broom-street, and for footpath, West Carlton-terrace, for the Urban District Council. Mr. C. R. Spencer, Surveyor, Silver-street, Spennymoor:—

G. A. Reevell ..	£335 10 0	G. Pickering, West Hartlepool*	£277 10 0
J. Crombie & Son, Ltd.....	347 19 0		

SWANSEA.—For erecting additional buildings for the Technical College, for the Local Education Authority. Mr. G. E. T. Laurence, architect, Chandos-chambers, 22, Buckingham-street, Adelphi, London. Quantities by Messrs. W. H. Barber & Son:—

W. Morgan	£11,475 8 5
T. D. Jones	11,420 0 0
E. Thomas & Sons	10,661 0 0
G. Davies.....	9,799 10 11
Stephens, Bastow, & Co., Ltd.	9,379 0 0
J. Marles & Sons.....	9,200 0 0
T. Richards	9,142 0 0
Pye, Parkinson, & Co.	9,129 10 0
D. Davies & Sons	8,758 0 0
H. Billings	8,600 0 0
D. W. Davies	8,513 0 0
Exors. of D. Jenkins	8,503 0 0
E. Turner & Sons.....	8,450 0 0
J. & D. Jones	8,400 0 0
A. J. Colborne.....	8,087 0 0
Bennett Bros.	7,997 0 0
Lloyd Bros.	7,733 8 0
J. & F. Weaver, Mauselton, Swansea‡	7,600 0 0

‡ Recommended to Council for acceptance.

WAKEFIELD.—Accepted for the alterations and additions to property in Northgate. Mr. Arnold S. Nicholson, architect and surveyor, City-chambers, Wakefield:—

Builder: W. H. Nicholson, Wakefield	£101 0 0
Joiner: J. Stead, Wakefield	142 0 0
Plumber and Slater: S. Atkinson, Wakefield	73 5 10

WREXHAM.—For pulling down and rebuilding stone boundary-wall and other works in Regent-street and Bradley-road, for the Corporation. Mr. Jno. England, Borough Engineer and Surveyor:—

T. Jones, Smithfield-road, Wrexham £33 7 0

W. H. Lascelles & Co.

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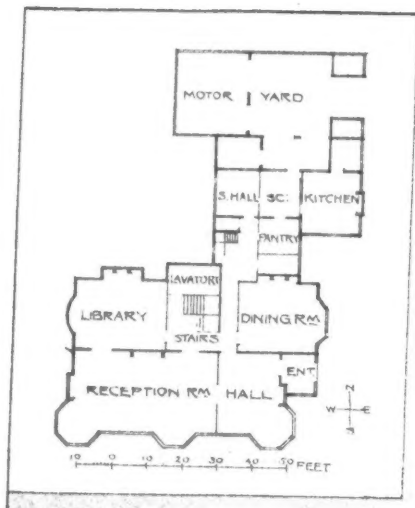

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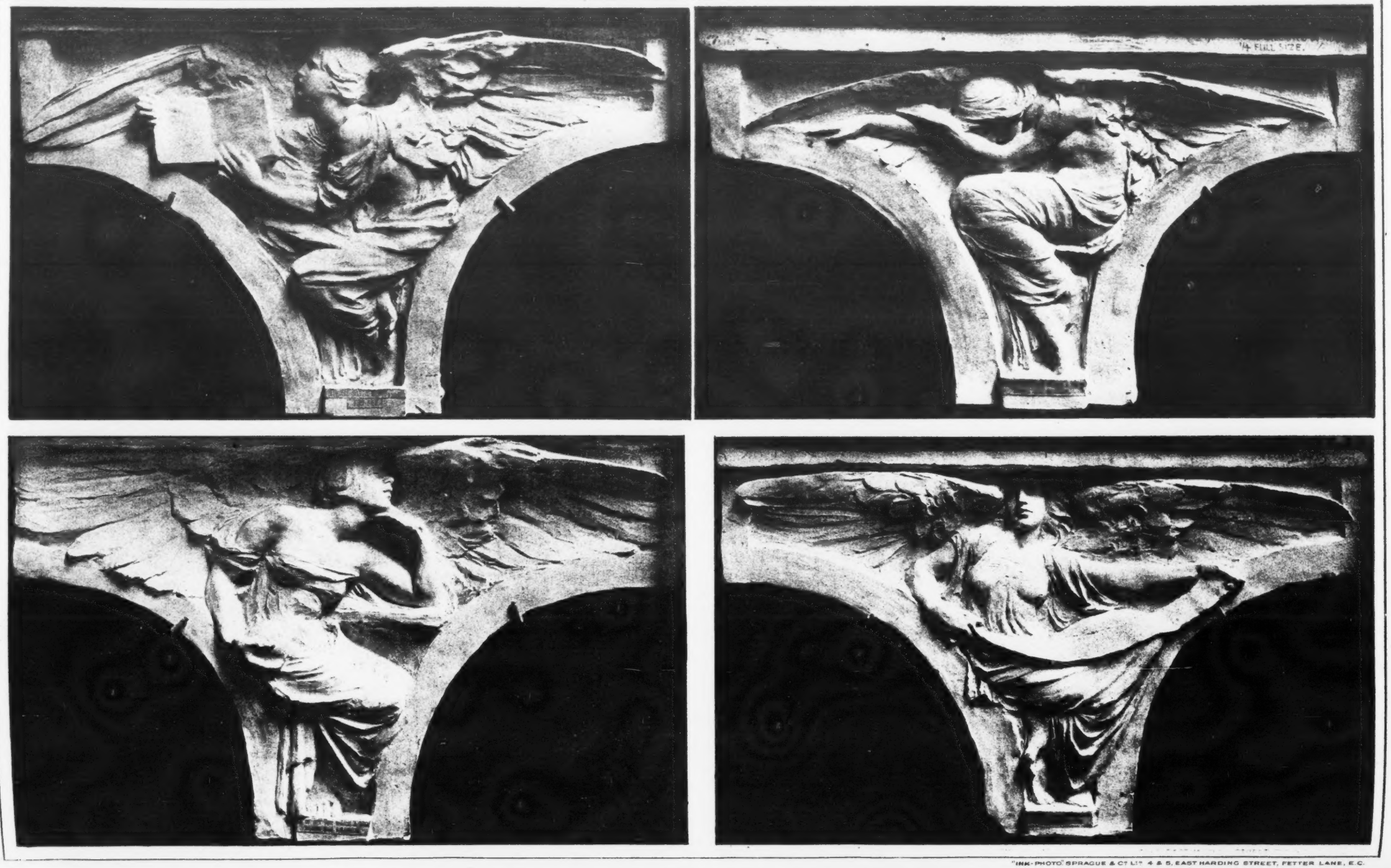

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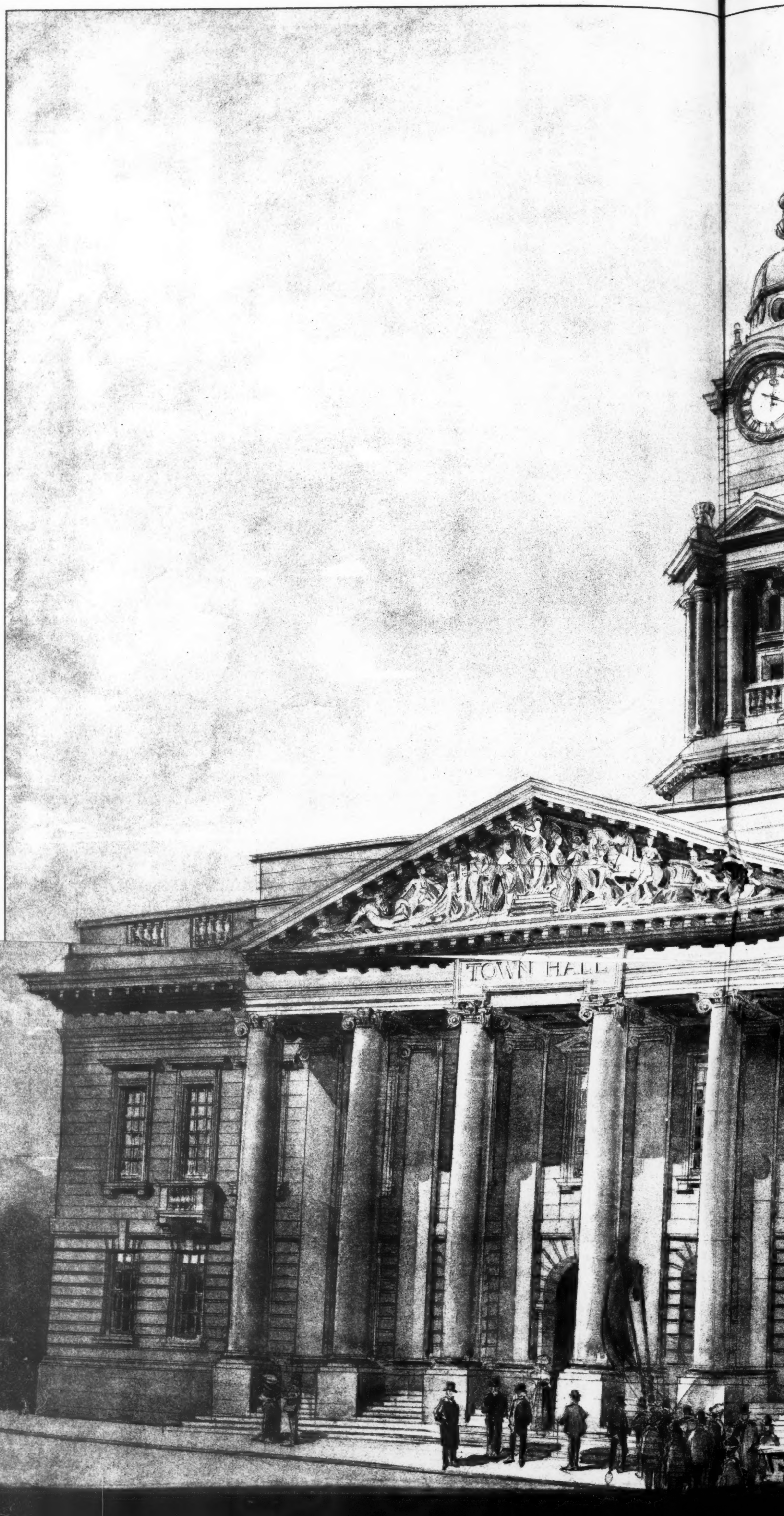
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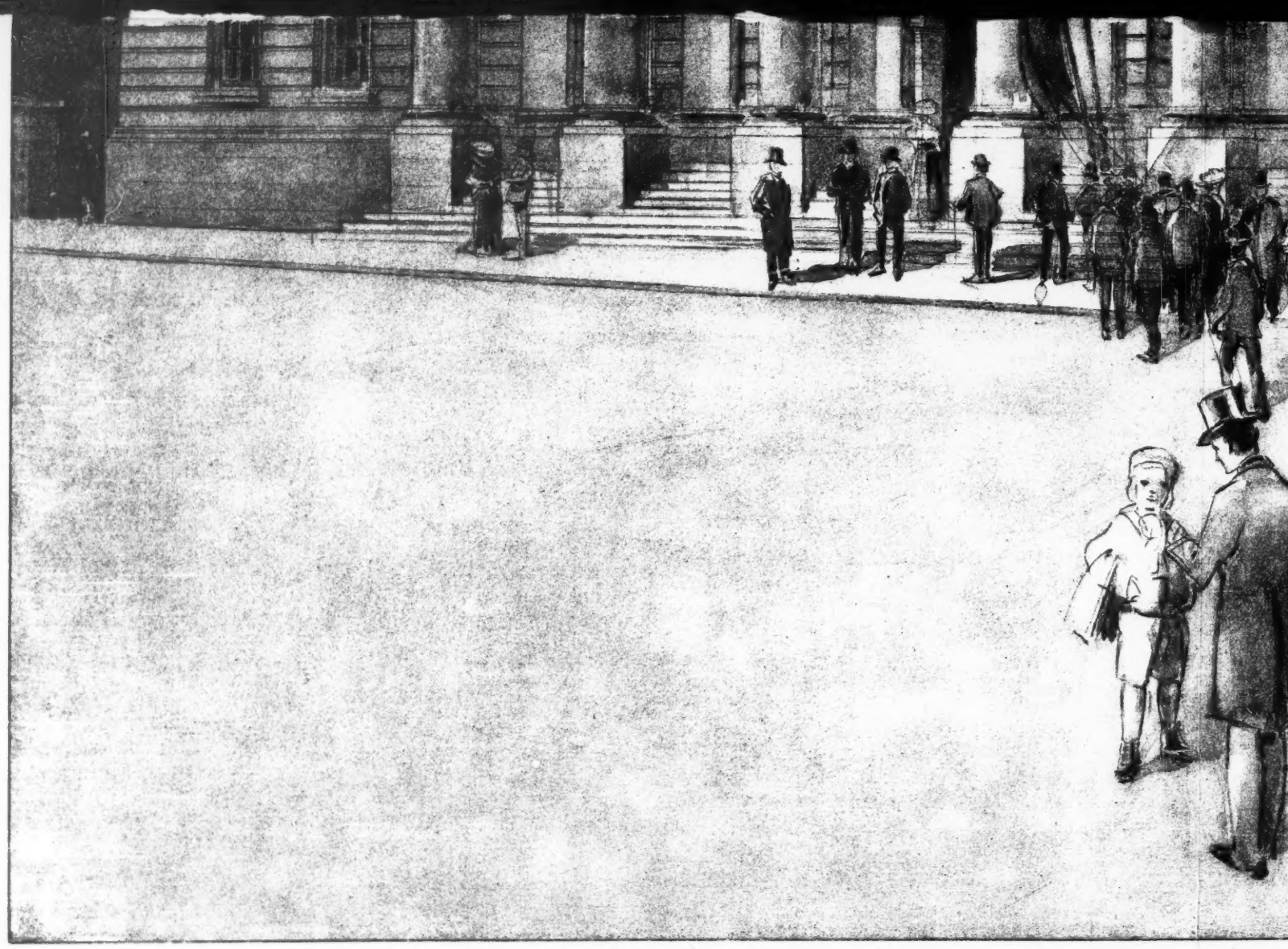
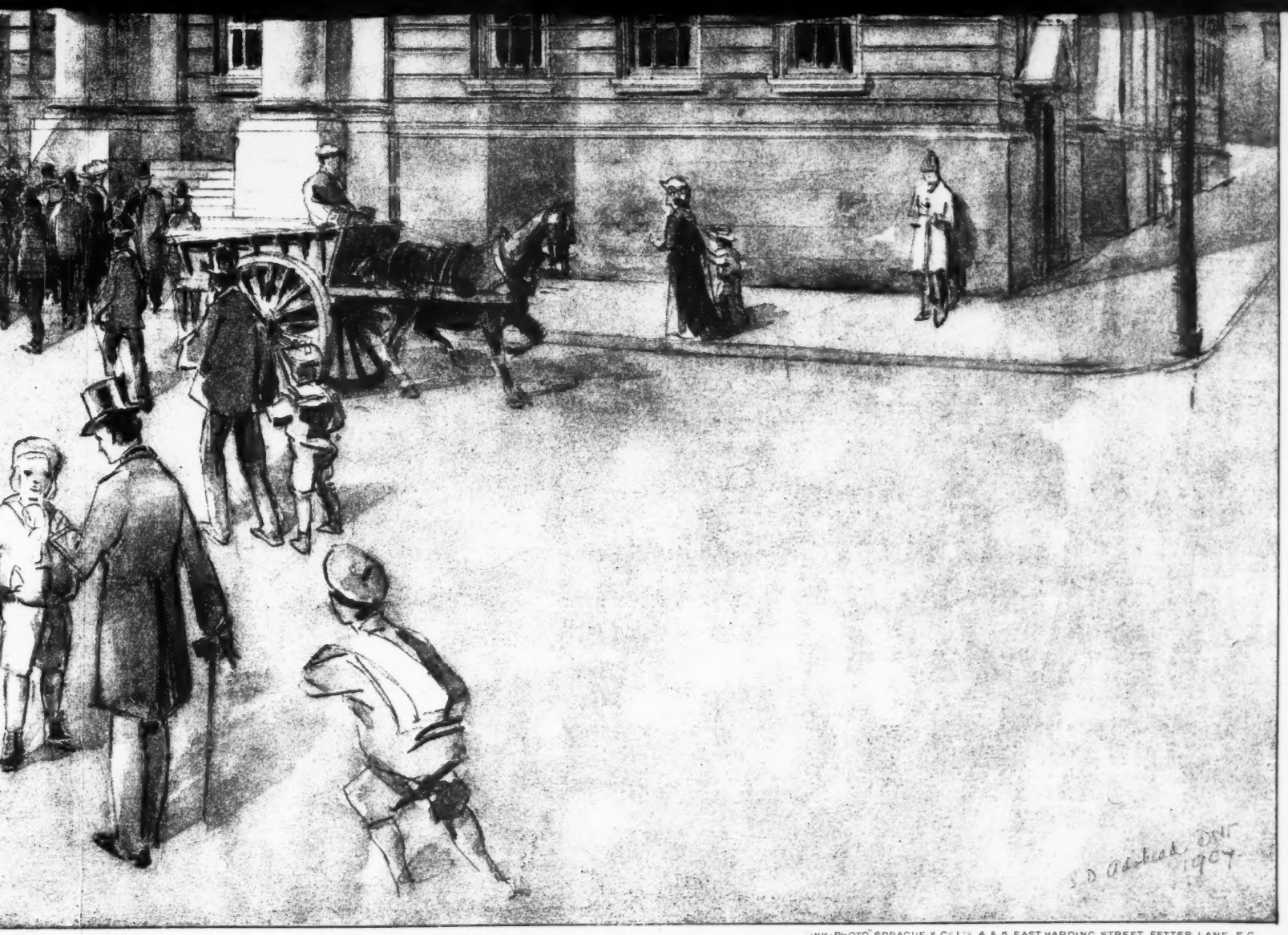


LANCASTER TOWN HALL: VIEW FROM DAULTON SQUARE.



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